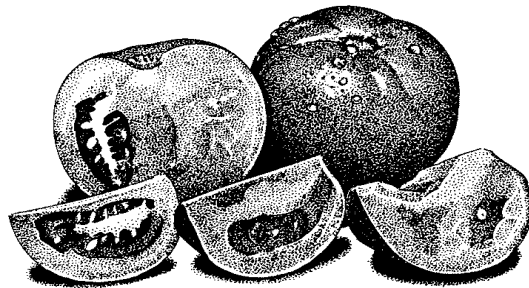


PROCESSING TOMATOES

**IN
SAN JOAQUIN
AND
CONTRA COSTA
COUNTIES**



1999 Variety Trial Summary

**University of California
Cooperative Extension
420 South Wilson Way
Stockton, California 95205**



1999
SAN JOAQUIN AND CONTRA COSTA COUNTY
PROCESSING TOMATO VARIETY TRIAL REPORT

Bob Mullen, UC Vegetable Crops Farm Advisor, San Joaquin County
and
Janet Caprile, UC Horticulture Farm Advisor, Contra Costa County

CONTRIBUTING AUTHORS:

Scott Whitely, Extension Field and Lab Technician (San Joaquin County)

Chuck Cancilla, Extension Field Assistant (San Joaquin County)

Michelle Rego, Extension Field Assistant (San Joaquin County)

The processing tomato industry in California depends on the availability of consistently dependable varieties that provide maximum yield and quality, yet conform to the demands of mechanical harvest and handling. In recent years, great emphasis has been placed on developing varieties with improved processing qualities as well as horticultural characteristics, including field vine storage, disease and nematode resistance, transportability and early plant emergence under cool climatic conditions. Breeding programs (public and private) are attempting to provide varieties with high soluble solids, better consistency (viscosity of juice and puree), improved firmness and color, jointlessness, easier peelability, better flavor, improved foliar cover to reduce losses from sunburn/scald, and insect, nematode and disease resistance.

Tomato variety trials provide a good opportunity to realistically evaluate and make side-by-side comparisons of various new and standard lines under actual grower field conditions. Standardized procedures for variety trials in a number of counties allow for greater variety comparisons over a wider geographical area. This greatly improves the value of variety trials and the information derived from them.

In 1999, California tomato growers produced an all-time record crop of 12.24 million tons. Despite a cool start to the planting season, coupled with some frost damage, the rest of the growing season was ideal for crop growth, fruit set and crop sizing. An extremely long, dry and warm late summer, plus good field holding varieties, allowed harvest to continue until early November. Disease pressure, other than *Verticillium Wilt*, was very light in 1999. With the normal exception of a few problem fields, yields locally were very good.

Two processing tomato variety trials were conducted locally in 1999. One was an early-season maturity trial, cooperatively done with Janet Caprile, Contra Costa County Farm Advisor. The grower cooperators were Stan Nunn and "Supy" Lopez of Nunn farms near Brentwood, California. Twelve replicated varieties and an additional 15 observational lines were planted. The trial was established on March 22, 1999 and the field variety was H-9382. A midseason maturity trial was established at Marca Bella Farms (Mark, Bert and John Bacchetti) off Tom Paine Road northeast of Tracy, California. This trial contained 18 replicated lines and another 28 varieties in a single replication

observation block. The midseason trial was planted on May 17, 1999 and first irrigated on June 1, 1999. The field variety was H-9663.

GROWTH AND DEVELOPMENT

Crop growth up to the thinning stage was excellent with the early season maturity trial. Unfortunately, a decision was made to begin construction of the new Brentwood Post Office, which coincidentally happened to include the trial site. The grower had been told originally that the field would not be affected by the construction until after crop harvest. Be that as it may, three-fourths of the replicated trial was either plowed out or abandoned for Post Office construction. The remaining replication and the observation block grew very well for the remainder of the season with excellent crop set and fruit size. The midseason maturity variety trial grew under optimal climatic conditions throughout the growing season with excellent fruit set and size. Additionally, due to the lateness of the season and limited processor loads for the grower, the trial field had to be held about 3 weeks past optimal harvest time. Almost all of the trial lines field-stored remarkably well. Ethephon was applied about four weeks before harvest. Varieties showing some vine burn due to the ethephon application included ABP 721, U-573, Hy Peel 513, APTX 391, CXD 188, CXD 203, U-9411, PS 41816, La Rossa and UG-709. Two varieties that showed absolutely no effect from ethephon application were TA-1533 and Sun 6337. The field soil type in the early season trial was Brentwood clay loam, and the midseason trial soil type was a Sacramento clay loam/Columbia silty clay loam mix.

Varieties for the trial were planted using Earthway hand-push planters after the growers had left a premarked, prepared bed area that had already been fertilized with a preplant starter, and herbicide had already been applied for this trial, as well as the rest of the field. In the trials, both the replicated and observation plots were 100 feet long. Bed spacing was 60 inches at the Nunn Farms trial and 66 inches at Marca Bella Farms; the Nunn Farms trial was single row planted while the Marca Bella Farms trial had twin rows per bed. Winter-spring rainfall brought the crop up and that was followed by furrow irrigation at Nunn Farms; the Marca Bella Farms trial was furrow irrigated throughout the season. Both trials were grown under each grower's normal cultural management practices. Until the problem with the new Brentwood Post Office occurred, the trial was intended for mechanical harvest. However, due to the loss of 3 replications of the trial, the remaining replication and the observation block were hand harvested. The midseason maturity trial was mechanically harvested with the growers' machine and crew.

Fruit quality samples were taken just prior to trial harvest and sent to the local Processing Tomato Advisory Board Inspection Station at Panella Trucking, Incorporated, for soluble solids (Brix^o) and color evaluation. Samples from both trials were also taken by the Department of Food Science and Technology at UC Davis where Dr. Diane Barrett ran ^oBrix, pH, Bostwick, Titratable acidity (% citric), USDA color, Predicted Paste Bostwick, Predicted Paste Yield and Predicted Catsup Yield. Two replications were sampled out of the replicated variety block of each trial, while one sample was taken from each observational line in the trials. The data for all trials sampled by the Department of Food Science and Technology in the Statewide Farm Advisor Tomato Variety Evaluation Project will be provided in Diane Barrett's California League of Food Processors T-4 Project Report.

YIELD

As was previously mentioned in the early season maturity trial, only one replication remained from the replicated trial plus the observation block after construction of the new Post Office on the trial site had

begun. Consequently, what remained of the trial was grouped into one large block and treated as an observation trial. The trial was hand harvested on August 13, 1999. Samples of each variety were taken and sent to the PTAB Inspection Station owned by Panella Trucking, Inc., in Stockton for soluble solids (°Brix) and fruit color analysis. Yields were excellent in the 27 variety observation block, averaging 49.8 tons/Acre. Soluble solids averaged 4.82 and fruit color averaged 19.0.

The top yielding individual varieties in the early season maturity trial were PX 20816 at 67.3 tons/Acre, followed by FMX 1115NP (59.2 tons/Acre), APT 410 (57.0 tons/Acre), H-9661 (55.1 tons/Acre), CXD 206 (55.0 tons/Acre), ENP 113 (55.0 tons/Acre), APT 723 (54.7 tons/Acre), RPT 2332 (53.4 ton/Acre) and H-9552 (53.1 tons/Acre). Yield figures for all the varieties in the observation trial are contained in Table 1, along with fruit quality data on soluble solids (°Brix), Brix Yield and color.

The midseason maturity variety trial was harvested on October 20, 1999. Samples of each variety were taken two days before and sent to the PTAB Inspection Station owned by Panella Trucking, Inc., in Stockton. Yields were excellent, with the entire replicated block of 18 varieties averaging 38.3 tons/Acre, while the 28 observation lines averaged 35.8 tons/Acre. Soluble solids (°Brix) in the replicated block averaged only 4.69, down from the 1998 midseason trial, while the observation trial of 28 lines averaged 4.92, about the same as 1998. Fruit color in the replicated block was 24.8, a bit worse than 1998 levels, while the 28 lines in the observational trial also averaged 24.8, also less desirable than 1998 levels.

The best yielding varieties in the midseason maturity replicated trial were ABP-721 at 43.7 tons/Acre, followed by H-9553 (42.8 tons/Acre), H-8892 (42.1 tons/Acre), H-9491 (40.3 tons/Acre), H-9665 (39.1 tons/Acre) and APTX 539 (38.3 tons/Acre). Yield figures for all of the varieties in the replicated trial, along with fruit quality data on soluble solids, Brix yield and color, are contained in Table 2.

In the midseason maturity observational trial block containing 28 varieties, highest yield was attained by AB 97-405 at 41.7 tons/Acre, followed by CXD 188 (41.6 tons/Acre), Brigade (41.5 tons/Acre), CXD 161 (39.0 tons/Acre), Sun 6321 (37.6 tons/Acre), Sun 6270 (37.6 tons/Acre), H-9663 (37.4 tons/Acre), APTX 391 (37.3 tons/Acre) and OSX 388 (37.2 tons/Acre). Remember the results shown are only from one replication of each line in the observational trial. Yield figures for all of the lines in the observational trial, including fruit quality data on soluble solids, Brix Yield and color are presented in Table 3.

Many Thanks

Many thanks to Stan Nunn and “Supy” Lopez, and Bert, Mark and John Bacchetti for their participation and cooperation in these trials. These trials are a disruption in normal grower operations, but these gentlemen put up with these interruptions to increase their own knowledge and to benefit the whole industry. Thanks also to all tomato growers who continue to support research through cash contributions to the California Tomato Research Institute. The CTRI funded the Uniform Quality Determinations and Statewide Processing Tomato Variety Trials project for the 27th year.

Thanks also to Tom Ramme, Gary Grant, Kay Ricketts and Sheri Campbell of the Processing Tomato Advisory Board Inspection System for all their help and cooperation in running tomato fruit quality samples. Appreciation is also expressed to Panella Trucking, Inc. (Bob Panella and Art Pratt) for allowing the quality samples to be run at their grading station facility.

Much gratitude is also expressed to Diane Barrett and Sam Matoba of the Department of Food Science and Technology for all their efforts in running quality samples for the Farm Advisor trials, and to Gail Nishimoto at UC Davis for doing the statistical analysis (individual and combined trials) for the farm advisor variety trials project.

Many thanks also to the seed industry, who provide the basic material for the trials and who provided financial support in 1999, and to everyone in the tomato industry for their guidance and support.

1999 STATEWIDE UNIFORM PROCESSING TOMATO VARIETY TRIALS

EARLY SEASON MATURITY VARIETY LIST

| | | |
|--------------------------------------|--------------------|-------------------------------|
| <u>Asgrow Seed</u> | | <u>Petoseed</u> |
| APT 403 \$VFFNP | APT 723 \$VFFNP | Hy Peel 45 \$VFFNP |
| APT 410 \$VFFNP | Brigade \$VFF | Hy Peel 280 \$VFFNP |
| | | PX 1817 \$VFFNP |
| | | PX 20816 \$VFFNP |
| <u>Campbell Soup</u> | | |
| CXD 187 \$VFFNP | CXD 204 \$VFFNP | |
| CXD 206 \$VFFNP | | |
| | | <u>R. and D. Consulting</u> |
| | | ES-911 \$VFFNP |
| <u>Ferry Morse/Harris Moran Seed</u> | | |
| FMX 1080N \$VFFN | FMX 1115NP \$VFFNP | <u>Rogers Seed (Novartis)</u> |
| | | RPT 2332 \$VFFN |
| <u>H. J. Heinz</u> | | |
| H-9382 \$VFFNP | H-9661 \$VFFNP | <u>Sunseeds</u> |
| H-9280 \$VFFNP | H-9552 \$VFFN | Sun 6235 \$VFFN |
| H-8773 \$VFFN | H-9881 \$VFFNP | Sun 6287 \$VFFNP |
| H-9888 \$VFFNP | | |
| | | <u>United Genetics, Inc.</u> |
| | | ENP 113 \$VFFNP |
| <u>Orsetti Seed</u> | | |
| Red Century 32 \$VFFNP | | |
| BOS 351 \$VFFNP | | |

DISEASE RESISTANCE AND HYBRID CODES

| | | | |
|----|--------------------------------------|----|---|
| \$ | = Hybrid | FF | = Fusarium Wilt Race I and II Resistant |
| V | = Verticillium Wilt Race I Resistant | N | = Root Knot Nematode Resistant |
| F | = Fusarium Wilt Race I Resistant | P | = Bacterial Speck Resistant |

Table 1. 1999 EARLY SEASON PROCESSING TOMATO VARIETY TRIAL
NUNN FARMS – BRENTWOOD, CALIFORNIA

| <u>Variety</u> | <u>Yield (Tons/Ac)</u> | <u>Brix Yield (Tons/Ac)</u> | <u>Soluble Solids (°Brix)</u> | <u>Color (AgTron)</u> | <u>Crop Maturity @ Harvest (%)</u> | | |
|-----------------|----------------------------|---------------------------------|-----------------------------------|---------------------------|--|--------------|--------------|
| | | | | | <u>Red</u> | <u>Green</u> | <u>Culls</u> |
| PX 20816 | 67.3 | 2.961 | 4.4 | 18.0 | 85.0 | 11.5 | 3.5 |
| FMX 1115NP | 59.2 | 2.962 | 5.0 | 20.0 | 86.7 | 10.4 | 2.9 |
| APT 410* | 57.0 | 2.908 | 5.1 | 18.0 | 94.6 | 2.7 | 2.7 |
| H-9661* | 55.1 | 2.756 | 5.0 | 18.0 | 88.1 | 11.4 | 0.5 |
| CXD 206 | 55.0 | 2.752 | 5.0 | 21.0 | 93.7 | 6.1 | 0.2 |
| ENP 113 | 55.0 | 2.422 | 4.4 | 18.0 | 85.1 | 14.7 | 0.2 |
| APT 723 | 54.7 | 2.408 | 4.4 | 18.0 | 83.8 | 12.1 | 4.1 |
| RPT 2332 | 53.4 | 2.349 | 4.4 | 22.0 | 87.1 | 11.6 | 1.3 |
| H-9552 | 53.1 | 2.547 | 4.8 | 21.0 | 90.5 | 5.4 | 4.1 |
| Hy Peel 280* | 52.2 | 2.401 | 4.6 | 20.0 | 96.2 | 2.9 | 0.9 |
| H-9382 | 51.9 | 2.750 | 5.3 | 17.0 | 87.0 | 10.4 | 2.6 |
| CXD 204* | 50.7 | 2.585 | 5.1 | 18.0 | 88.9 | 9.7 | 1.4 |
| ES 911 | 50.5 | 2.223 | 4.4 | 19.0 | 84.5 | 6.0 | 9.5 |
| Brigade | 48.9 | 2.444 | 5.0 | 18.0 | 89.2 | 6.5 | 4.3 |
| BOS 351 | 47.9 | 2.013 | 4.2 | 21.0 | 89.6 | 8.1 | 2.3 |
| PX 1817 | 47.1 | 2.167 | 4.6 | 18.0 | 85.6 | 12.9 | 1.5 |
| Red Century 32* | 46.9 | 2.250 | 4.8 | 19.0 | 93.1 | 6.0 | 0.9 |
| H-8773 | 45.9 | 2.113 | 4.6 | 21.0 | 85.7 | 10.6 | 3.7 |
| H-9881 | 45.9 | 2.114 | 4.8 | 23.0 | 92.1 | 6.3 | 1.6 |
| CXD 187* | 45.8 | 2.472 | 5.4 | 17.0 | 88.5 | 9.2 | 2.3 |
| APT 403* | 45.8 | 2.335 | 5.1 | 18.0 | 90.3 | 7.8 | 1.9 |
| H-9280* | 45.1 | 2.257 | 5.0 | 18.0 | 94.2 | 5.0 | 0.8 |
| Sun 6235* | 45.0 | 2,249 | 5.0 | 20.0 | 82.9 | 14.2 | 2.9 |
| Sun 6287* | 44.1 | 2.294 | 5.2 | 18.0 | 93.6 | 5.7 | 0.7 |
| FMX 1080N* | 43.2 | 1.985 | 4.6 | 20.0 | 94.1 | 5.2 | 0.7 |
| H-9888 | 40.4 | 2.019 | 5.0 | 18.0 | 82.9 | 13.0 | 4.1 |
| Hy Peel 45* | 36.4 | 1.822 | 5.0 | 17.0 | 92.6 | 5.4 | 2.0 |

* Indicates variety that was in the replicated trial

1999 STATEWIDE UNIFORM PROCESSING TOMATO VARIETY TRIALS

MID SEASON MATURITY VARIETY LIST

| | | | |
|--------------------------------------|-------------------|-------------------------------|--------------------|
| <u>AB Seeds Ltd.</u> | | <u>Nippon Del Monte</u> | |
| AB 4077 \$VFFN | AB 97-405 \$VFFNP | NDM 551 \$VFFN | |
| <u>Asgrow Seed</u> | | <u>Orsetti Seed</u> | |
| APTX 391 \$VFFNP | Brigade \$VFF | Halley \$VFF | BOS S-55 \$VFFN |
| APTX 539 \$VFFN | | BOS 20/20 \$VFFN | |
| <u>Campbell Soup</u> | | <u>Ochoa Seed</u> | |
| CXD 179 \$VFF | CXD 161 \$VFFF | OSX 388 \$VFF | OSX 395 \$VFFN |
| CXD 188 \$VFF | CXD 199 \$VFFNP | | |
| CXD 207 \$VFFN | CXD 203 \$VFFNP | | |
| CXD 208 \$VFFN | | | |
| <u>Cornell University</u> | | <u>Petoseed</u> | |
| TA 1533 \$ | TA 1534 \$VFNP | Hy Peel 303 \$VFFNP | Hy Peel 513 \$VFFN |
| | | Hy Peel 65 \$VFFNP | PX 34716 \$VFFNP |
| | | PX 41816 \$VFFNP | |
| <u>Ferry Morse/Harris Moran Seed</u> | | <u>R and D Consulting</u> | |
| FMX 1114N \$VFFN | | ES-1086 \$VFFNP | |
| <u>H. J. Heinz</u> | | <u>Rogers Seed (Novartis)</u> | |
| H-9553 \$VFFN | H-9557 \$VFFNP | La Rossa \$VFF | |
| H-9491 \$VFFNP | H-9663 \$VFFNP | | |
| H-9492 \$VFN | H-9775 \$VFFNP | <u>Sunseeds</u> | |
| H-8892 \$VFFN | H-9665 \$VFFNP | Sun 6270 \$VFFNP | Sun 6229 \$VFFN |
| H-9773 \$VFFNP | | Sun 6321 \$VFFNP | Sun 6337 \$VFFNP |
| <u>Lipton</u> | | <u>United Genetics</u> | |
| U573 VFFNP | U570 \$VFFN | Gibraltar 505 \$VFFNP | UG 709 \$VFFNP |
| U9411 \$VFFN | | | |

DISEASE RESISTANCE AND HYBRID CODES

| | | | |
|----|--------------------------------------|-----|--------------------------------|
| \$ | = Hybrid | N | = Root Knot Nematode Resistant |
| V | = Verticillium Wilt Race I Resistant | P | = Bacterial Speck Resistant |
| F | = Fusarium Wilt Race I Resistant | FFF | = Fusarium Wilt - |
| FF | = Fusarium Wilt - | | |
| | Race I and II Resistant | | Race I, II and III Resistant |

Table 2. 1999 MID SEASON PROCESSING TOMATO VARIETY TRIAL
MARCA BELLA FARMS-NORTH OF TRACY, CALIFORNIA

| Replicated Varieties | Yield (Tons/Ac) | Brix Yield (Tons/Ac) | °Brix (Soluble Solids) | Color |
|----------------------|-----------------|----------------------|------------------------|-------|
| ABP 721 | 43.7 | 2.243 | 5.15 | 24.50 |
| H-9553 | 42.8 | 1.909 | 4.48 | 25.00 |
| H-8892 | 42.1 | 1.816 | 4.33 | 25.25 |
| H-9491 | 40.3 | 1.821 | 4.53 | 24.75 |
| H-9665 | 39.1 | 1.670 | 4.28 | 25.00 |
| APTX 539 | 38.3 | 1.913 | 5.00 | 24.25 |
| U-573 | 37.9 | 1.554 | 4.10 | 25.25 |
| Hy Peel 513 | 37.7 | 1.640 | 4.35 | 24.75 |
| Hy Peel 65 | 37.7 | 1.932 | 5.13 | 25.00 |
| CXD 179 | 37.5 | 1.862 | 4.98 | 24.25 |
| H-9492 | 37.3 | 1.803 | 4.83 | 24.50 |
| BOS S-55 | 37.2 | 1.718 | 4.63 | 25.25 |
| Sun 6229 | 36.9 | 1.788 | 4.85 | 25.25 |
| Halley 3155 | 36.6 | 1.791 | 4.90 | 25.00 |
| H-9557 | 36.5 | 1.803 | 4.95 | 24.50 |
| Hy Peel 303 | 36.3 | 1.615 | 4.45 | 24.75 |
| BOS 20/20 | 36.0 | 1.717 | 4.78 | 25.00 |
| CXD 199 | 35.9 | 1.686 | 4.73 | 24.75 |
| LSD @ 5%: | 3.3 | 0.180 | 0.41 | N.S. |
| CV = | 6.1% | 7.1% | 6.1% | 2.1% |

Table 3. 1999 MID SEASON PROCESSING TOMATO VARIETY TRIAL
MARCA BELLA FARMS – NORTH OF TRACY, CALIFORNIA

| Observation Varieties | Yield (Tons/Ac) | Brix Yield (Tons/Ac) | °Brix (Soluble Solids) | Color |
|--------------------------|--------------------|-------------------------|---------------------------|-------|
| AB 97-405 | 41.7 | 2.295 | 5.50 | 24.00 |
| CXD 188 | 41.6 | 2.041 | 4.90 | 24.00 |
| Brigade | 41.5 | 1.784 | 4.30 | 24.00 |
| CXD 161 | 39.0 | 1.948 | 5.00 | 25.00 |
| Sun 6321 | 37.6 | 1.618 | 4.30 | 25.00 |
| Sun 6270 | 37.6 | 1.843 | 4.90 | 25.00 |
| H-9663 | 37.4 | 1.794 | 4.80 | 25.00 |
| APTX 391 | 37.3 | 1.643 | 4.40 | 26.00 |
| OSX 388 | 37.2 | 1.824 | 4.90 | 25.00 |
| ES-1086 | 37.0 | 1.701 | 4.60 | 25.00 |
| PS 34716 | 36.7 | 1.650 | 4.50 | 25.00 |
| PS 41816 | 36.4 | 1.708 | 4.70 | 25.00 |
| CXD 208 | 36.2 | 1.773 | 4.90 | 25.00 |
| TA-1533 | 36.0 | 2.018 | 5.60 | 25.00 |
| H-9775 | 35.4 | 1.593 | 4.50 | 25.00 |
| NDM 551 | 35.2 | 1.833 | 5.20 | 25.00 |
| U-9411 | 35.1 | 1.684 | 4.80 | 25.00 |
| OSX 395 | 34.7 | 1.699 | 4.90 | 25.00 |
| FMX 1114N | 33.8 | 1.961 | 5.80 | 25.00 |
| U-570 | 33.6 | 1.578 | 4.70 | 25.00 |
| CXD 203 | 33.3 | 1.530 | 4.60 | 24.00 |
| TA-1534 | 33.3 | 1.996 | 6.00 | 25.00 |
| La Rossa | 33.2 | 1.559 | 4.70 | 26.00 |
| H-9773 | 32.9 | 1.643 | 5.00 | 24.00 |
| Sun 6337 | 32.8 | 1.607 | 4.90 | 24.00 |
| CXD 207 | 32.7 | 1.668 | 5.10 | 24.00 |
| Gibraltar 505 | 32.0 | 1.504 | 4.70 | 25.00 |
| UG-709 | 31.8 | 1.401 | 4.40 | 25.00 |

1999 STATEWIDE PROCESSING TOMATO VARIETY EVALUATION TRIALS

Since 1972, the California Tomato Research Institute, in cooperation with UC Cooperative Extension, has supported the Statewide UCCE Farm Advisor/Specialist Processing Tomato Variety Evaluation Project. This project has supplied growers, processors, seedsmen and field personnel with valuable information on variety performance in field trials over a wide geographical area as well as for processing quality characteristics. It has also provided vital data to individual production districts and counties on varietal adaptability to local conditions. This year, the project evaluated 12 replicated early maturing varieties, 18 replicated midseason maturing lines and 43 single replication (observational) early and midseason maturity selections common to all locations.

This past season saw statewide processing tomato production at an all-time record of 12.24 million tons. With the exception of some early spring frost problems, the season was nearly ideal in terms of climate. Harvest was not completed until early November, made possible by a dry and warm late summer/early fall. Disease pressure for the whole season was very low for the most part.

The statewide UCCE variety evaluation project averaged 37.4 tons/Acre for the early season replicated variety trial and 42.5 tons/Acre for the midseason maturity replicated trials. Early season replicated trial soluble solids (°Brix) averaged 4.8, somewhat lower than 1998. Soluble solids were slightly better in the midseason replicated trials averaging 4.9, but still lower than the 1998 trials. Early season color in the replicated trials (25.2) was better than 1998 (26.4) while color in the midseason replicated trials was 23.9, a bit worse than 1998 (23.3).

Results and Discussion

Eight counties (Sutter, Colusa, Yolo, San Joaquin, Contra Costa, Stanislaus, Merced and Fresno) participated in the statewide variety evaluation studies this past season, conducting eleven early and midseason trials. The four following tables represent summaries of yield and fruit quality from the 1999 Statewide UCCE Farm Advisor/Specialist Processing Tomato Variety Evaluation Project. These summaries were obtained from the computer trial data analysis done by Gail Nishimoto at Davis under private contract.

Table A represents yield and quality means from the Uniform Replicated Early Season Maturity Variety Trials. Results of three trials from Yolo, Colusa and Stanislaus counties are contained in this analysis. Highest yield was attained by CXD 204 at 41.1 tons/Acre, followed by FMX 1080N (40.4 tons/Acre), H-9280 (39.7 tons/Acre), CXD 187 (39.3 tons/Acre), H-9661 (37.9 tons/Acre) and Sun 6235 (37.4 tons/Acre). In terms of fruit quality, the top varieties in soluble solids (°Brix) were Hy Peel 45 (5.5), Red Century 32 (5.1), APT 410 (5.1), and Sun 6235 (5.0). Best color was attained by CXD 204 (23.6), Red Century 32 (23.8), APT 410 (24.2), Hy Peel 280 (24.8) and CXD 187 (24.9). An Agron color meter is used to determine color, so the lower the numerical value, the better the fruit color.

Table B presents results from the Early Season Maturity Observational Variety Trials. Results of four trials from Yolo, Colusa, San Joaquin/Contra Costa and Stanislaus Counties are contained in this analysis. The highest yield in these trials was achieved by APT 723 at 42.7 tons/Acre, followed by PX 20816 (40.8 tons/Acre), CXD 206 (40.6 tons/Acre), FMX 1115NP (38.8 tons/Acre) and Early Nema Pride 113 (38.5 tons/Acre). The best lines for soluble solids were AB 97-453 (5.8), PX 20816 (5.5), H-9888 (5.4), FMX 1115NP (5.3), and RPT 2332 (5.2). Varieties showing the best fruit color were Brigade (21.8), H-8773 (22.3), ES-911 (22.5), APT 723 (22.8), H-9888 (22.8) and PX 20816 (22.8).

Table C shows data summarized for the Midseason Maturity Replicated Trials. Results are shown for six county locations: Colusa, Sutter, Yolo, San Joaquin, Merced and Fresno. Best yield was produced by H-9492 at 46.6 tons/Acre, followed by H-9553 (46.0 tons/Acre), H-8892 (45.3 tons/Acre), H-9665 (44.5 tons/Acre), ABP 721 (44.5 tons/Acre), Hy Peel 303 (42.6 tons/Acre) and H-9491 (42.6 tons/Acre). Soluble solids (°Brix) values were led by CXD 179, APTX 539, ABP 721 and Hy Peel 65, all at 5.2, then followed by Halley 3155 (5.1), BOS 20/20 (5.0) and H-9557 (5.0). Varieties providing the best fruit color were APTX 539 (22.4), H-9492 (22.5), H-9553 (22.5), H-9557 (23.3), ABP 721 (23.3) and H-8892 (23.3).

Table D provides data from the Midseason Maturity Observational Variety Trials in the 6 counties previously mentioned. Highest yield occurred with CXD 188 at 44.7 tons/Acre, followed by H-9775 (44.3 tons/Acre), H-9663 (44.2 tons/Acre), AB 97-405 (43.5 tons/Acre), OSX 395 (42.8 tons/Acre), OSX 388 (42.6 tons/Acre) and CXD 207 (41.7 tons/Acre). In terms of fruit quality, the best varieties for soluble solids were TA-1534 (5.5), NDM 551 (5.4), AB 97-405 (5.3), FMX 1114N (5.3), Sun 6270 (5.3) and CXD 207 (5.2). Best fruit color was achieved by CXD 207 (21.2), CXD 188 (22.3), CXD 208 (22.5), Sun 6337 (22.7), Sun 6321 (22.7), Brigade (22.8), U-570 (23.0) and AB 97-405 (23.0).

TABLE A

PROCESSING TOMATO EARLY SEASON MATURITY VARIETY TRIALS
COMBINED YIELD AND QUALITY DATA

REPLICATED VARIETY TRIALS
(THREE LOCATIONS: YOLO, STANISLAUS AND COLUSA)

| Variety | Yield | | °Brix | Color |
|--------------------|-----------|------|-------|-------|
| | Tons/Acre | | | |
| CXD 204 | 41.1 | A | 4.7 | 23.6 |
| FMX 1080N | 40.4 | AB | 4.7 | 26.6 |
| H-9280 | 39.7 | ABC | 4.5 | 25.8 |
| CXD 187 | 39.3 | ABC | 4.6 | 24.9 |
| H-9661 | 37.9 | ABCD | 4.5 | 26.2 |
| Sun 6235 | 37.4 | BCDE | 5.0 | 25.0 |
| Hy Peel 45 | 36.8 | BCDE | 5.5 | 26.3 |
| Hy Peel 280 | 36.6 | CDE | 4.9 | 24.8 |
| Red Century 32 | 36.6 | CDE | 5.1 | 23.8 |
| APT 410 | 34.5 | DE | 5.1 | 24.2 |
| APT 403 | 34.3 | DE | 4.7 | 25.8 |
| Sun 6287 | 34.1 | E | 4.7 | 25.3 |
| LSD @ 5%: | 3.7 | | 0.2 | 1.2 |
| CV = | 12.1% | | 4.8% | 5.8% |
| Mean = | 37.4 | | 4.8 | 25.2 |
| Variety x Location | | | | |
| LSD @ 5%: | 6.4 | | 0.3 | 2.0 |

TABLE B

PROCESSING TOMATO EARLY SEASON MATURITY VARIETY TRIALS
 COMBINED YIELD AND QUALITY DATA

OBSERVATION VARIETY TRIALS
 (FOUR LOCATIONS: COLUSA, YOLO, SAN JOAQUIN/CONTRA COSTA,
 AND STANISLAUS)

| Variety | Yield Tons/Acre | °Brix | Color |
|----------------------|--------------------|-------|-------|
| APT 723 | 42.7 | 4.5 | 22.8 |
| PX 20816 | 40.8 | 5.5 | 22.8 |
| CXD 206 | 40.6 | 5.0 | 23.5 |
| FMX 1115NP | 38.8 | 5.3 | 24.0 |
| Early Nema Pride 113 | 38.5 | 4.9 | 23.3 |
| H-8773 | 37.7 | 4.7 | 22.3 |
| H-9881 | 37.7 | 4.5 | 26.3 |
| RPT 2332 | 37.7 | 5.2 | 24.5 |
| ES-911 | 37.5 | 4.6 | 22.5 |
| Brigade | 37.2 | 5.1 | 21.8 |
| H-9552 | 36.0 | 5.1 | 23.8 |
| BOS 351 | 35.6 | 5.0 | 24.3 |
| PX 1817 | 34.8 | 5.1 | 24.3 |
| AB 97-453 | 34.3 | 5.8 | 23.1 |
| H-9888 | 33.9 | 5.4 | 22.8 |
| LSD @ 5%: | N.S. | 0.5 | 2.1 |
| CV = | 14.0% | 7.0% | 6.4% |
| Mean = | 37.4 | 5.0 | 23.5 |

TABLE C

PROCESSING TOMATO MID SEASON MATURITY VARIETY TRIALS
COMBINED YIELD AND QUALITY DATA

REPLICATED VARIETY TRIALS
(SIX LOCATIONS: COLUSA, SUTTER, YOLO, SAN JOAQUIN,
MERCED AND FRESNO)

| Variety | Yield | | °Brix | Color |
|--------------------|-----------|-----|-------|-------|
| | Tons/Acre | | | |
| H-9492 | 46.6 | A | 4.9 | 22.5 |
| H-9553 | 46.0 | A | 4.8 | 22.5 |
| H-8892 | 45.3 | A | 4.7 | 23.3 |
| H-9665 | 44.5 | AB | 4.8 | 23.9 |
| ABP 721 | 44.5 | AB | 5.2 | 23.3 |
| Hy Peel 303 | 42.6 | BC | 4.7 | 24.3 |
| H-9491 | 42.6 | BC | 4.8 | 23.4 |
| CXD 179 | 42.5 | BC | 5.2 | 23.5 |
| Sun 6229 | 42.3 | BCD | 4.9 | 25.3 |
| BOS 20/20 | 41.9 | CDE | 5.0 | 24.5 |
| Halley 3155 | 41.3 | CDE | 5.1 | 24.4 |
| Hy Peel 65 | 41.2 | CDE | 5.2 | 24.9 |
| H-9557 | 41.1 | CDE | 5.0 | 23.2 |
| CXD 199 | 41.1 | CDE | 4.9 | 23.5 |
| APTX 539 | 40.9 | CDE | 5.2 | 22.4 |
| Hy Peel 513 | 40.4 | CDE | 4.5 | 24.2 |
| U-573 | 40.1 | DE | 4.6 | 24.6 |
| BOS S-55 | 39.9 | E | 4.9 | 25.6 |
| LSD @ 5%: | 2.3 | | 0.1 | 0.8 |
| CV = | 9.7% | | 5.0% | 5.6% |
| Mean = | 42.5 | | 4.9 | 23.9 |
| Variety x Location | | | | |
| LSD @ 5%: | 5.8 | | 0.3 | 1.9 |

TABLE D

PROCESSING TOMATO MID SEASON MATURITY VARIETY TRIALS
COMBINED YIELD AND QUALITY DATA

OBSERVATION VARIETY TRIALS
(SIX LOCATIONS: COLUSA, SUTTER, YOLO, SAN JOAQUIN,
MERCED AND FRESNO)

| Variety | Yield | | °Brix | Color |
|---------------|-----------|-------|-------|-------|
| | Tons/Acre | | | |
| CXD 188 | 44.7 | A | 4.8 | 22.3 |
| H-9775 | 44.3 | AB | 4.8 | 24.0 |
| H-9663 | 44.2 | AB | 4.7 | 23.2 |
| AB 97-405 | 43.5 | ABC | 5.3 | 23.0 |
| OSX 395 | 42.8 | ABCD | 4.9 | 24.5 |
| OSX 388 | 42.6 | ABCD | 4.9 | 24.3 |
| CXD 207 | 41.7 | ABCDE | 5.2 | 21.2 |
| NDM 551 | 41.4 | ABCDE | 5.4 | 23.7 |
| PX 41816 | 41.2 | ABCDE | 5.0 | 23.3 |
| Sun 6270 | 41.1 | ABCDE | 5.3 | 23.4 |
| FMX 1114N | 41.0 | ABCDE | 5.3 | 24.2 |
| APTX 391 | 41.0 | ABCDE | 4.7 | 24.6 |
| CXD 203 | 40.6 | ABCDE | 4.8 | 23.2 |
| Sun 6337 | 40.2 | ABCDE | 5.1 | 22.7 |
| CXD 208 | 40.2 | ABCDE | 5.1 | 22.5 |
| Brigade | 39.4 | ABCDE | 4.9 | 22.8 |
| PS 34716 | 39.3 | ABCDE | 4.9 | 23.4 |
| ES-1086 | 39.3 | ABCDE | 5.1 | 24.2 |
| Sun 6321 | 39.2 | ABCDE | 4.7 | 22.7 |
| UG 709 | 38.4 | ABCDE | 4.8 | 24.5 |
| U-9411 | 38.0 | BCDEF | 4.6 | 24.3 |
| CXD 161 | 38.0 | BCDEF | 5.1 | 23.8 |
| U-570 | 37.3 | CDEF | 4.8 | 23.0 |
| Gibraltar 505 | 36.8 | DEF | 5.0 | 23.8 |
| H-9773 | 35.9 | EF | 5.1 | 23.3 |
| La Rossa | 35.7 | EF | 4.8 | 24.4 |
| TA-1534 | 31.5 | F | 5.5 | 23.4 |
| LSD @ 5%: | 6.5 | | 0.3 | 1.3 |
| CV = | 14.3% | | 5.5% | 4.9% |
| Mean = | 39.9 | | 5.0 | 23.5 |

TA-1533 was not present in all trials:

In four locations (Colusa, Yolo, San Joaquin and Fresno) average yield = 34.4 Tons/Acre

In three locations (Colusa, Yolo and San Joaquin) average °Brix = 5.8

In three locations (Colusa, Yolo and San Joaquin) average Color = 26.0

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