The need to find fresh market tomato varieties with disease and nematode resistance, as well as improved horticultural characteristics (fruit size, firmness, color, smoothness, easy stemming or jointless stems, small blossom and stem scars, less fruit cracking and better flavor), along with yield potential, continues to be of great importance to fresh market tomato growers and shippers in both San Joaquin and Stanislaus Counties.

Contributing to this increased need is the fact that all of the suitable ground for tomatoes has been cropped to either fresh market or processing tomatoes at one time or another over the years and particularly over the past few seasons. Resistance of varieties to both Races 1 and 2 Fusarium wilt is very common. Virtually all lines have resistance to Race 1 of Verticillium wilt, but there is no known resistance to Verticillium wilt Race 2. Presence of the disease in local fresh market tomato fields has been limited but is increasing. Potential loss of soil fumigation materials has caused seed breeders to develop nematode resistance in most of their newer lines. Many of the newer lines also possess tobacco mosaic, Alternaria and Stemphyllim resistance, and a few have bacterial speck resistance. Additional concerns by growers and shippers relate to effective management of powdery mildew and Phytophthora late blight, particularly with anticipated and actual losses of fungicides due to recent and proposed legislation, as well as current pathogen resistance to some existing fungicides. Possible loss of certain insecticides increased the need for varietal resistance efforts in this area. Insect resistance to insecticides is a continuing concern as well.

Another source of concern to growers is the nagging uncertainty of an adequate labor force to harvest the crop. Acreage in the San Joaquin-Stanislaus district has increased dramatically over the past few years. Interest is high in developing varieties that will retain good horticultural and yield characteristics and yet lend themselves to hand picking and/or mechanical harvest. With this in mind, a number of varieties from private seed company breeding programs have been evaluated for both jointless or “arthritic” stem characteristics.
The bottom line in varietal development and acceptance revolves around having cultivars that yield and ship well enough to offset increased production costs, while providing the quality and flavor characteristics buyers and consumers demand.

2000 Variety Trials

In 2000, two fresh market tomato variety trials, one with standard Round lines and the other with “Roma-type” cultivars were cooperatively conducted in the northern San Joaquin Valley with Lagorio Farms (Dean and Kathy Janssen, George Biagi), and Ace Tomato Company (Dean Janssen, Jeff Rurup) near French Camp, California. Additional support for conducting the trials was provided by the California Tomato Commission and its President, Ed Beckman. Input from the field managers of a number of fresh market shippers in the San Joaquin Valley on selection of varieties evaluated in the trials was most appreciated.

The trial of Round varieties contained 10 replicated lines with an additional 21 cultivars in single replication observation plots. The “Roma-type” trial contained six replicated varieties with another fourteen lines in observation. Transplants for both trials were produced by Craven Transplants (Brad Bonnett) near Crows Landing, California. The field variety at the trial site was Shady Lady in three quarters of the field while the remaining portion of the field had Monica, a “Roma Type” line.

The trials were transplanted on June 2, 2000, under warm climatic conditions. Stand survival was excellent with a furrow irrigation applied within a few days of transplanting. The soil type at the trial site was a Stockton Adobe clay. Vine growth in the trial and fruit set were very good producing a very good crop with excellent fruit size. Disease pressure, with the exception of a light amount of powdery mildew, was quite low throughout the season.

The trials, both Round and “Roma-type” varieties, were hand harvested on September 6 and 7, 2000. Yields were very good with excellent fruit size in both the Round and “Roma-type” variety trials. Complete data on yield and fruit size for the Replicated Round Varieties are shown in Table 1. The best yield of marketable red and green fruit was achieved by Qualit 21 at 35.9 tons/acre, followed by Sunbrite (35.0 tons/acre), Qualit 23 (32.6 tons/acre), Shady Lady (32.2 tons/acre), Sonnet (32.0 tons/acre) Fair Lady (31.8 tons/acre), PS 150440 (30.9 tons/acre).

In the single replication Observation Round Variety block, the highest yield of marketable red and green fruit occurred with XPH 12254 at 34.3 tons/acre, followed by XPH 12298 (31.8 tons/acre), BHN 102 (31.6 tons/acre), UGX 895 (30.9 tons/acre), SXT 6615 (28.8 tons/acre) and RFT 7041 (28.3 tons/acre) and BHN 524 (27.4 tons/acre). Table 2 provides complete yield and fruit sizing data for varieties trialed in the observation trial.

Fruit quality characteristics such as fruit shape, fruit smoothness, presence of green shoulder on the fruit, fruit firmness, stemability of fruit, along with observations on vine size, vine cover and other comments are provided in Table 3A for the Replicated Round Lines and Table 3B for the Observation Round Varieties.
In the “Roma” type fresh market tomato Replicated Trial block, the greatest yield of marketable red and green fruit was produced by Yaqui at 35.20 tons/acre, followed by Supra (29.5 tons/acre), HA-3302 (28.4 tons/acre) and PS 150046 (26.2 tons/acre). Four randomized plots were harvested out of the field variety – Monica. This variety produced a yield of 43.7 tons/acre of marketable red and green fruit, giving very large, smooth fruit of high quality. It will definitely be included in next year’s “Roma” trial. Yield, crop maturity and fruit sizing data are provided in Table 4.

In the Observation trial area of the “Roma” type fresh market tomato variety trial, the best yield of marketable red and green fruit was attained by RT-36 at 40.5 tons/acre, followed by Rio Oro 31 (39.0 tons/acre), BHN-523 (38.8 tons/acre), XP 671 (38.5 tons/acre), H106 (33.8 tons/acre), RT-42 (33.1 tons/acre) and Big Rio (32.8 tons/acre). Table 5 provides data on yield, crop maturity and fruit size for all of the lines evaluated in the observation block of the “Roma” type varieties.

Observations on fruit shape, fruit smoothness, fruit firmness, stemability of fruit, along with notes on vine cover and other comments for both the replicated and observation “Roma” type lines are presented in Table 6A and Table 6B.

From the standpoint of overall fruit quality, the leading round replicated lines were Qualit 21, Qualit 23, Sonnet, Sunbrite, SRT 6624 and PS 150440. Best round observational lines included RFT 7041, BHN 302, AT48, RFT 8054, HA 3639 and AT10. Of the replicated “Roma” type lines, Supra, Clemente, HA 3302, and Yaqui (except for some irregular-shaped fruit) gave the best combination of yield and fruit quality. In the “Roma” type observation block, HA 3307, RT42, H106 and BHN 523 probably gave a good combination of yield and quality, but almost all of the lines either were variable in fruit shape or had a non-traditional “Roma” shape. Had Monica been in the regular trial block it would have best the superior “Roma” line both in terms of yield and quality. One element is still missing from variety evaluation trials and that is the flavor (sensory) component. It is hoped future research funding will be available for this critical consumer factor.
### 2000 Fresh Market Tomato Varieties
#### Round Lines

<table>
<thead>
<tr>
<th>Seed Company</th>
<th>Replicated</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asgrow Seed</td>
<td>SunBrite</td>
<td>XPH 12298</td>
</tr>
<tr>
<td></td>
<td>Sonnet</td>
<td>XPH 12254</td>
</tr>
<tr>
<td>American Takii</td>
<td>AT10</td>
<td>AT76</td>
</tr>
<tr>
<td></td>
<td>AT48</td>
<td>AT89</td>
</tr>
<tr>
<td></td>
<td>AT71</td>
<td></td>
</tr>
<tr>
<td>BHN Seed</td>
<td>BHN 102</td>
<td>BHN 377</td>
</tr>
<tr>
<td></td>
<td>BHN 301</td>
<td>BHN 524</td>
</tr>
<tr>
<td>D. Palmer Seed Co.</td>
<td>Vered</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hadas</td>
<td></td>
</tr>
<tr>
<td>Hazzer Seed</td>
<td></td>
<td>HA-3638</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HA-3644</td>
</tr>
<tr>
<td>Novartis Seeds</td>
<td>Qualit 21</td>
<td>RFT-7041</td>
</tr>
<tr>
<td></td>
<td>Qualit 23</td>
<td>RFT 8054</td>
</tr>
<tr>
<td>Petoseed</td>
<td>PS 150440</td>
<td></td>
</tr>
<tr>
<td>Sunseeds</td>
<td>Shady Lady</td>
<td>SRT 6615</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SRT 6677</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SRT 66700</td>
</tr>
<tr>
<td>United Genetics</td>
<td>Fair Lady</td>
<td>UGX 14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UGX 895</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Simone</td>
</tr>
</tbody>
</table>
Table 1.  
2000 FRESH MARKET TOMATO VARIETY TRIAL  
LAGORIO FARMS/ACE TOMATO CO. - FRENCH CAMP, CA  
REPLICATED YIELD TRIAL - ROUND LINES

<table>
<thead>
<tr>
<th>Variety</th>
<th>Marketable Yield 1 (Red + Green)</th>
<th>Fruit Sizing Data (%)</th>
<th>Crop Maturity @ Harvest (%) 1</th>
<th>Culls 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tons/Acre</td>
<td>Boxes/Acre</td>
<td>Extra Large</td>
<td>Large</td>
</tr>
<tr>
<td>Qualit 21</td>
<td>35.88</td>
<td>2,870</td>
<td>70.9</td>
<td>23.6</td>
</tr>
<tr>
<td>Sunbrite</td>
<td>35.05</td>
<td>2,804</td>
<td>70.6</td>
<td>23.9</td>
</tr>
<tr>
<td>Qualit 23</td>
<td>32.60</td>
<td>2,608</td>
<td>62.0</td>
<td>34.0</td>
</tr>
<tr>
<td>Shady Lady</td>
<td>32.18</td>
<td>2,574</td>
<td>60.7</td>
<td>33.2</td>
</tr>
<tr>
<td>Sonnet</td>
<td>31.96</td>
<td>2,557</td>
<td>46.0</td>
<td>32.0</td>
</tr>
<tr>
<td>Fair Lady</td>
<td>31.85</td>
<td>2,548</td>
<td>58.2</td>
<td>34.5</td>
</tr>
<tr>
<td>PS 150440</td>
<td>30.93</td>
<td>2,474</td>
<td>66.0</td>
<td>26.4</td>
</tr>
<tr>
<td>SRT 6624</td>
<td>27.63</td>
<td>2,210</td>
<td>61.5</td>
<td>36.4</td>
</tr>
<tr>
<td>Vered</td>
<td>27.17</td>
<td>2,174</td>
<td>51.5</td>
<td>46.4</td>
</tr>
<tr>
<td>Hadas</td>
<td>26.63</td>
<td>2,130</td>
<td>55.1</td>
<td>44.9</td>
</tr>
</tbody>
</table>

LSD @ 5%: 5.70 | 456 | 6.8 | 8.8 | 7.5
Mean: 31.19 | 2,495 | 22.4 | 65.5 | 12.1
C.V. 12.6% | 20.9% | 9.3% | 42.7%

1 Average of four replications - tons per acre of extra large, large, medium and small sized fruit
Table 2.

2000 FRESH MARKET TOMATO VARIETY TRIAL
LAGORIO FARMS/ACE TOMATO CO. - FRENCH CAMP, CA
OBSERVATION TRIAL - ROUND LINES

<table>
<thead>
<tr>
<th>Variety</th>
<th>Marketable Yield (Red + Green)</th>
<th>Fruit Sizing Data (%)</th>
<th>Crop Maturity @ Harvest (%)</th>
<th>Culls</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tons/Acre Boxes/Acre Extra Large Large Medium Small</td>
<td>Red Green Culls</td>
<td>Tons/Acre</td>
<td></td>
</tr>
<tr>
<td>XPH 12254</td>
<td>34.32 2,746</td>
<td>53.2 36.2 8.5 2.1</td>
<td>17.9 67.5 14.6 5.9</td>
<td></td>
</tr>
<tr>
<td>XPH 12298</td>
<td>31.80 2,544</td>
<td>58.1 38.7 3.2 0.0</td>
<td>31.4 53.5 15.1 5.7</td>
<td></td>
</tr>
<tr>
<td>BHN 102</td>
<td>31.58 2,526</td>
<td>65.4 27.3 7.3 0.0</td>
<td>29.2 55.6 15.2 5.7</td>
<td></td>
</tr>
<tr>
<td>UGX 895</td>
<td>30.93 2,474</td>
<td>76.0 24.0 0.0 0.0</td>
<td>5.1 85.4 9.5 3.2</td>
<td></td>
</tr>
<tr>
<td>SXT 6615</td>
<td>28.84 2,307</td>
<td>40.3 40.3 19.4 0.0</td>
<td>29.3 54.3 16.4 5.7</td>
<td></td>
</tr>
<tr>
<td>RFT 7041</td>
<td>28.31 2,265</td>
<td>65.8 34.2 0.0 0.0</td>
<td>5.3 81.3 13.4 4.4</td>
<td></td>
</tr>
<tr>
<td>BHN 524</td>
<td>27.44 2,195</td>
<td>58.7 37.2 4.1 0.0</td>
<td>25.5 54.8 19.7 6.7</td>
<td></td>
</tr>
<tr>
<td>Simone</td>
<td>27.01 2,161</td>
<td>37.1 40.0 20.0 2.9</td>
<td>21.6 70.9 7.5 2.2</td>
<td></td>
</tr>
<tr>
<td>BHN 301</td>
<td>26.22 2,098</td>
<td>62.5 28.3 9.2 0.0</td>
<td>27.1 54.5 18.4 5.9</td>
<td></td>
</tr>
<tr>
<td>SRT 6677</td>
<td>26.14 2,091</td>
<td>36.4 38.6 25.0 0.0</td>
<td>12.4 80.6 7.0 2.0</td>
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</tr>
<tr>
<td>HA 3644</td>
<td>26.14 2,091</td>
<td>35.2 42.6 22.2 0.0</td>
<td>18.5 60.9 20.6 6.8</td>
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</tr>
<tr>
<td>RFT 8054</td>
<td>24.83 1,986</td>
<td>58.2 21.6 18.1 2.1</td>
<td>6.5 68.0 25.5 8.5</td>
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</tr>
<tr>
<td>AT 71</td>
<td>23.52 1,882</td>
<td>43.3 44.9 11.8 0.0</td>
<td>22.2 70.1 7.7 2.0</td>
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</tr>
<tr>
<td>AT 48</td>
<td>23.09 1,847</td>
<td>42.7 36.2 21.1 0.0</td>
<td>15.5 66.7 17.8 5.0</td>
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</tr>
<tr>
<td>HA 3638</td>
<td>22.87 1,830</td>
<td>56.5 34.8 8.7 0.0</td>
<td>17.5 59.1 23.4 7.0</td>
<td></td>
</tr>
<tr>
<td>UGX 14</td>
<td>22.87 1,830</td>
<td>20.2 49.6 22.1 8.1</td>
<td>21.1 71.0 7.9 2.0</td>
<td></td>
</tr>
<tr>
<td>SRT 6700</td>
<td>22.22 1,778</td>
<td>33.3 35.2 29.6 1.9</td>
<td>23.5 62.2 14.3 3.7</td>
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</tr>
<tr>
<td>BHN 377</td>
<td>21.34 1,707</td>
<td>36.2 35.1 28.7 0.0</td>
<td>20.7 63.8 15.5 3.9</td>
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</tr>
<tr>
<td>AT 89</td>
<td>21.13 1,690</td>
<td>42.4 52.8 4.8 0.0</td>
<td>16.8 64.7 18.5 4.8</td>
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</tr>
<tr>
<td>AT 76</td>
<td>20.04 1,603</td>
<td>35.2 57.3 7.5 0.0</td>
<td>9.5 78.1 12.4 2.8</td>
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</tr>
<tr>
<td>AT 10</td>
<td>19.38 1,550</td>
<td>41.3 42.5 16.2 0.0</td>
<td>16.7 70.6 12.7 2.8</td>
<td></td>
</tr>
</tbody>
</table>

1 Average of only one replication - tons per acre of extra large, large, medium and small sized fruit
### Table 3A.

2000 FRESH MARKET TOMATO VARIETY TRIALS
LAGORIO FARMS/ACE TOMATO – FRENCH CAMP, CALIFORNIA
REPLICATED TRIAL – “ROUND LINES”

<table>
<thead>
<tr>
<th>Variety</th>
<th>Maturity</th>
<th>Fruit Shape</th>
<th>Fruit Smoothness</th>
<th>Green Shoulder</th>
<th>Fruit Firmness</th>
<th>Stemming</th>
<th>Vine Cover</th>
<th>Other Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualit 21</td>
<td>M</td>
<td>G</td>
<td>3.0</td>
<td>No</td>
<td>3.5</td>
<td>2.0</td>
<td>Good</td>
<td>Some high shouldered fruit</td>
</tr>
<tr>
<td>Qualit 23</td>
<td>M</td>
<td>G</td>
<td>4.0</td>
<td>No</td>
<td>4.0</td>
<td>2.0</td>
<td>Fair-Good</td>
<td>Fruit size not as good as Qualit 21</td>
</tr>
<tr>
<td>Sunbrite</td>
<td>M</td>
<td>FR</td>
<td>3.0</td>
<td>No</td>
<td>3.5</td>
<td>3.5</td>
<td>Good</td>
<td>High shouldered fruit</td>
</tr>
<tr>
<td>Sonnet</td>
<td>M</td>
<td>FR-G</td>
<td>3.5</td>
<td>No</td>
<td>3.0</td>
<td>2.5</td>
<td>Fair-Good</td>
<td>Smaller fruit and some nipped fruit</td>
</tr>
<tr>
<td>Shady Lady</td>
<td>M</td>
<td>FR</td>
<td>3.0</td>
<td>No</td>
<td>3.0</td>
<td>2.0</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>PS150440</td>
<td>ML</td>
<td>G</td>
<td>3.5</td>
<td>No</td>
<td>4.0</td>
<td>3.5</td>
<td>Good</td>
<td>Some pointy fruit</td>
</tr>
<tr>
<td>Fair Lady</td>
<td>M</td>
<td>FR</td>
<td>2.5</td>
<td>No</td>
<td>3.0</td>
<td>3.0</td>
<td>Semi-Open</td>
<td>Floppy vine</td>
</tr>
<tr>
<td>Hadas</td>
<td>EM</td>
<td>G</td>
<td>4.0</td>
<td>No</td>
<td>2.5</td>
<td>3.5</td>
<td>Semi-Open</td>
<td>Smallish fruit</td>
</tr>
<tr>
<td>Vered</td>
<td>ML</td>
<td>FR-G</td>
<td>2.5</td>
<td>Yes</td>
<td>3.0</td>
<td>3.5</td>
<td>Semi-Open</td>
<td>Floppy vine and green shouldered fruit</td>
</tr>
<tr>
<td>SRT 6624</td>
<td>ML</td>
<td>FR-G</td>
<td>2.5</td>
<td>No</td>
<td>3.0</td>
<td>3.5</td>
<td>Good</td>
<td>Some high shouldered fruit</td>
</tr>
</tbody>
</table>

1 M = Midseason Maturity   E = Early Maturity   L = Late Maturity   VL = Very Late Maturity   ML = Mid Late Maturity   EM = Early to Midseason Maturity
2 Fruit Shape: FR = Flat Round; G = Globe
3 Fruit Smoothness: 1 = Bad; 5 = Excellent
4 Fruit Firmness: 1 = Soft; 5 = Very firm
5 Stemability: 1 = Hard Stemming (Many stems attached to fruit); 5 = Stems Easily
Table 3B.

2000 FRESH MARKET TOMATO VARIETY TRIALS
LAGORIO FARMS/ACE TOMATO – FRENCH CAMP, CALIFORNIA
OBSERVATION TRIAL – “ROUND LINES”

<table>
<thead>
<tr>
<th>Variety</th>
<th>Maturity¹</th>
<th>Fruit² Shape</th>
<th>Fruit¹ Smoothness</th>
<th>Green Shoulder</th>
<th>Fruit² Firmness</th>
<th>Stemming⁵</th>
<th>Vine Cover</th>
<th>Other Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>XPH 12254</td>
<td>ML</td>
<td>FR-G</td>
<td>3.5</td>
<td>No</td>
<td>3.0</td>
<td>2.5</td>
<td>Fair</td>
<td>Smaller fruit</td>
</tr>
<tr>
<td>XPH 12298</td>
<td>EM</td>
<td>FR</td>
<td>3.0</td>
<td>No</td>
<td>3.0</td>
<td>3.5</td>
<td>Fair-Good</td>
<td>Smallish fruit</td>
</tr>
<tr>
<td>BHN 102</td>
<td>M</td>
<td>FR-G</td>
<td>3.0</td>
<td>No</td>
<td>2.5</td>
<td>2.5</td>
<td>Semi-Open</td>
<td></td>
</tr>
<tr>
<td>BHN 301</td>
<td>ML</td>
<td>G</td>
<td>4.0</td>
<td>No</td>
<td>3.0</td>
<td>3.5</td>
<td>Semi-Open</td>
<td>Pointy smallish fruit, floppy vine</td>
</tr>
<tr>
<td>BHN 377</td>
<td>ML</td>
<td>G</td>
<td>4.0</td>
<td>No</td>
<td>3.0</td>
<td>3.5</td>
<td>Semi-Open</td>
<td>Pointy small fruit</td>
</tr>
<tr>
<td>BHN 524</td>
<td>M</td>
<td>G</td>
<td>4.0</td>
<td>No</td>
<td>3.0</td>
<td>2.0</td>
<td>Semi-Open</td>
<td>Some pointy fruit, small yellow vine</td>
</tr>
<tr>
<td>AT 10</td>
<td>L</td>
<td>G</td>
<td>2.5</td>
<td>No</td>
<td>2.5</td>
<td>2.0</td>
<td>Fair-Good</td>
<td>Floppy vine, some nippling and green rays on fruit</td>
</tr>
<tr>
<td>AT 48</td>
<td>ML</td>
<td>FR-G</td>
<td>3.0</td>
<td>No</td>
<td>3.0</td>
<td>3.0</td>
<td>Fair-Good</td>
<td>Some pointy fruit</td>
</tr>
<tr>
<td>AT 71</td>
<td>L</td>
<td>FR-G</td>
<td>3.0</td>
<td>No</td>
<td>2.5</td>
<td>2.5</td>
<td>Semi-Open</td>
<td>Smallish fruit</td>
</tr>
<tr>
<td>AT 76</td>
<td>ML</td>
<td>FR</td>
<td>2.5</td>
<td>No</td>
<td>4.0</td>
<td>3.5</td>
<td>Semi-Open</td>
<td>Rough fruit shoulders, floppy vine, worm damage</td>
</tr>
<tr>
<td>AT 89</td>
<td>M</td>
<td>FR</td>
<td>3.5</td>
<td>No</td>
<td>4.5</td>
<td>3.0</td>
<td>Fair-Good</td>
<td>Some high shouldered fruit, some pointed fruit</td>
</tr>
<tr>
<td>RFT 7041</td>
<td>M</td>
<td>FR-G</td>
<td>3.5</td>
<td>No</td>
<td>4.0</td>
<td>3.0</td>
<td>Fair-Good</td>
<td>Some pointed fruit and green rays on fruit, floppy vine</td>
</tr>
<tr>
<td>RFT 8054</td>
<td>M</td>
<td>G</td>
<td>3.5</td>
<td>No</td>
<td>4.0</td>
<td>3.0</td>
<td>Fair</td>
<td>Floppy vine and worm damage</td>
</tr>
<tr>
<td>SXT 6615</td>
<td>ML</td>
<td>FR-G</td>
<td>3.0</td>
<td>No</td>
<td>3.0</td>
<td>3.0</td>
<td>Fair-Good</td>
<td>Some high shouldered fruit and floppy vine</td>
</tr>
<tr>
<td>SRT 6677</td>
<td>L</td>
<td>FR-G</td>
<td>3.0</td>
<td>No</td>
<td>4.0</td>
<td>3.5</td>
<td>Fair-Good</td>
<td>Smallish fruit</td>
</tr>
<tr>
<td>SRT 6700</td>
<td>ML</td>
<td>FR-G</td>
<td>2.5</td>
<td>No</td>
<td>2.5</td>
<td>3.5</td>
<td>Open + Small</td>
<td>Floppy vine, sunburn, fruit size variability</td>
</tr>
<tr>
<td>HA 3638</td>
<td>ML</td>
<td>G</td>
<td>3.0</td>
<td>No</td>
<td>3.0</td>
<td>3.0</td>
<td>Semi-Open</td>
<td>Some high shouldered fruit, floppy vine</td>
</tr>
<tr>
<td>HA 3644</td>
<td>EM</td>
<td>G</td>
<td>3.5</td>
<td>Yes</td>
<td>3.0</td>
<td>3.5</td>
<td>Semi-Open</td>
<td>Floppy vine, some high shouldered fruit and green rays on fruit</td>
</tr>
<tr>
<td>UGX 14</td>
<td>ML</td>
<td>FR-G</td>
<td>3.0</td>
<td>No</td>
<td>4.0</td>
<td>3.5</td>
<td>Fair-Good</td>
<td>Smallish fruit</td>
</tr>
<tr>
<td>UGX 895</td>
<td>ML</td>
<td>FR</td>
<td>2.5</td>
<td>No</td>
<td>4.0</td>
<td>3.5</td>
<td>Semi-Open</td>
<td>Smallish fruit and green rays on fruit</td>
</tr>
<tr>
<td>Simone</td>
<td>L</td>
<td>FR</td>
<td>3.0</td>
<td>No</td>
<td>4.0</td>
<td>3.5</td>
<td>Semi-Open</td>
<td>Floppy vine and variable size fruit</td>
</tr>
</tbody>
</table>

¹ M = Midseason Maturity   E = Early Maturity   L = Late Maturity   VL = Very Late Maturity   ML = Mid Late Maturity   EM = Early to Midseason Maturity
² Fruit Shape: FR = Flat Round; G = Globe
³ Fruit Smoothness: 1 = Bad; 5 = Excellent
⁴ Fruit Firmness: 1 = Soft; 5 = Very firm
⁵ Stemability: 1 = Hard Stemming (Many stems attached to fruit); 5 = Stems Easily
### 2000 Fresh Market Tomato Varieties
#### “Roma” Lines

<table>
<thead>
<tr>
<th>Seed Company</th>
<th>Replicated</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asgrow Seed</td>
<td>Clemente</td>
<td>XP 671</td>
</tr>
<tr>
<td>American Takii</td>
<td></td>
<td>RT 36 RT 42</td>
</tr>
<tr>
<td>BHN Seed</td>
<td></td>
<td>BHN 523</td>
</tr>
<tr>
<td>D. Palmer Seed</td>
<td></td>
<td>Matador Vaquero</td>
</tr>
<tr>
<td>Hazzeria Seed</td>
<td>HA-3302 HA-3307</td>
<td></td>
</tr>
<tr>
<td>H.J. Heinz Seed</td>
<td></td>
<td>H-106 H-107 H-113 H-117</td>
</tr>
<tr>
<td>Novartis Seeds</td>
<td>Supra</td>
<td></td>
</tr>
<tr>
<td>Petoseed</td>
<td>Yaqui Firense</td>
<td>Hybrid 882</td>
</tr>
<tr>
<td>Sakata Seed America</td>
<td>Monica</td>
<td></td>
</tr>
<tr>
<td>Sunseeds</td>
<td>SXT 6343</td>
<td></td>
</tr>
<tr>
<td>United Genetics</td>
<td></td>
<td>Big Rio Rio Oro 31 Rio Milagro</td>
</tr>
<tr>
<td>Variety</td>
<td>Marketable Yield ¹ (Red + Green)</td>
<td>Fruit Sizing Data (%)²</td>
</tr>
<tr>
<td>----------</td>
<td>-----------------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td></td>
<td>Tons/Acre</td>
<td>Boxes/Acre</td>
</tr>
<tr>
<td>Yaqui</td>
<td>35.18</td>
<td>2,814</td>
</tr>
<tr>
<td>Supra</td>
<td>29.47</td>
<td>2,358</td>
</tr>
<tr>
<td>HA 3302</td>
<td>28.36</td>
<td>2,269</td>
</tr>
<tr>
<td>PS 150046</td>
<td>26.20</td>
<td>2,096</td>
</tr>
<tr>
<td>Clemente</td>
<td>25.68</td>
<td>2,054</td>
</tr>
<tr>
<td>Hybrid 882</td>
<td>24.16</td>
<td>1,933</td>
</tr>
<tr>
<td>LSD @ 5%:</td>
<td>3.48</td>
<td>278</td>
</tr>
<tr>
<td>Mean:</td>
<td>28.17</td>
<td>2,254</td>
</tr>
<tr>
<td>C.V.</td>
<td>8.2%</td>
<td></td>
</tr>
</tbody>
</table>

¹ Average of four replications - tons per acre of extra large, large, medium and small sized fruit
² Fruit sizing criteria: Extra Large > 165g; Large 130 to 165g; Medium 90 to 130g; Small 50 to 90g.

* In the same field as the variety trial was a block of Monica and four random plots were selected for yield, crop maturity, and fruit sizing for comparison to those lines in the replicated trial.
### Table 5.

**2000 FRESH MARKET TOMATO VARIETY TRIAL**  
LAGORIO FARMS/ACE TOMATO CO. - FRENCH CAMP, CA  
**OBSERVATION TRIAL - "ROMA" LINES**

<table>
<thead>
<tr>
<th>Variety</th>
<th>Marketable Yield 1  (Red + Green)</th>
<th>Fruit Sizing Data (%) 2</th>
<th>Crop Maturity @ Harvest (%) 1</th>
<th>Culls 1 Tons/Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tons/Acre Boxes/Acre</td>
<td>Extra Large Large Medium Small</td>
<td>Red Green Culls</td>
<td></td>
</tr>
<tr>
<td>RT-36</td>
<td>40.51 3,241</td>
<td>10.3 20.5 38.5 30.7</td>
<td>29.1 64.1 6.8 3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Rio Oro 31</td>
<td>39.03 3,122</td>
<td>0.0 13.2 48.2 38.6</td>
<td>43.3 50.8 5.9 2.4</td>
<td>2.4</td>
</tr>
<tr>
<td>BHN-523</td>
<td>38.77 3,102</td>
<td>8.4 21.0 39.9 30.7</td>
<td>35.2 54.3 10.5 4.5</td>
<td>4.5</td>
</tr>
<tr>
<td>XP 671</td>
<td>38.51 3,081</td>
<td>0.0 8.7 52.2 39.1</td>
<td>21.6 63.7 14.7 6.6</td>
<td>6.6</td>
</tr>
<tr>
<td>H-106</td>
<td>33.80 2,704</td>
<td>0.0 4.0 45.4 50.6</td>
<td>22.4 65.4 12.2 4.7</td>
<td>4.7</td>
</tr>
<tr>
<td>RT-42</td>
<td>33.10 2,648</td>
<td>3.8 4.8 57.7 33.7</td>
<td>39.1 47.3 13.6 5.2</td>
<td>5.2</td>
</tr>
<tr>
<td>Big Rio</td>
<td>32.76 2,621</td>
<td>11.7 28.3 40.4 19.6</td>
<td>35.0 57.6 7.4 2.6</td>
<td>2.6</td>
</tr>
<tr>
<td>Rio Milagro</td>
<td>27.70 2,216</td>
<td>0.0 9.1 61.4 29.5</td>
<td>26.0 71.3 2.7 0.8</td>
<td>0.8</td>
</tr>
<tr>
<td>H-113</td>
<td>25.35 2,028</td>
<td>0.0 4.2 43.9 51.9</td>
<td>40.5 46.1 13.4 3.9</td>
<td>3.9</td>
</tr>
<tr>
<td>H-107</td>
<td>24.74 1,979</td>
<td>0.0 1.9 39.5 58.6</td>
<td>37.6 57.7 4.7 1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>HA 3307</td>
<td>23.00 1,840</td>
<td>0.0 2.7 39.9 57.4</td>
<td>38.0 54.9 7.1 1.8</td>
<td>1.8</td>
</tr>
<tr>
<td>H-117</td>
<td>21.26 1,701</td>
<td>0.0 2.6 44.7 52.7</td>
<td>45.1 43.0 11.9 2.9</td>
<td>2.9</td>
</tr>
<tr>
<td>Matador</td>
<td>19.17 1,534</td>
<td>0.0 0.0 39.0 61.0</td>
<td>41.5 45.5 13.0 2.9</td>
<td>2.9</td>
</tr>
<tr>
<td>Vaquero</td>
<td>17.86 1,429</td>
<td>0.0 1.5 32.1 66.4</td>
<td>30.4 58.7 10.9 2.2</td>
<td>2.2</td>
</tr>
</tbody>
</table>

1. Average of only one replication - tons per acre of extra large, large, medium and small sized fruit
2. Fruit sizing criteria: Extra Large > 165g; Large 130 to 165g; Medium 90 to 130g; Small 50 to 90g.
### Table 6A.
2000 FRESH MARKET TOMATO VARIETY TRIALS
LAGORIO FARMS/ACE TOMATO – FRENCH CAMP, CALIFORNIA
REPLICATED TRIAL – “ROMA” LINES

<table>
<thead>
<tr>
<th>Variety</th>
<th>Maturity</th>
<th>Fruit Shape</th>
<th>Fruit Smoothness</th>
<th>Fruit Firmness</th>
<th>Stemming</th>
<th>Vine Cover</th>
<th>Other Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hybrid 882</td>
<td>M</td>
<td>Long pear</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
<td>Fair-Good</td>
<td>Slightly floppy vine, fruit look good</td>
</tr>
<tr>
<td>Yaqui</td>
<td>M</td>
<td>Blocky pear</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
<td>Good</td>
<td>Large fruit, but non traditional shape</td>
</tr>
<tr>
<td>Clemente</td>
<td>ML</td>
<td>Long pear</td>
<td>4.0</td>
<td>3.5</td>
<td>4.0</td>
<td>Fair-Good</td>
<td>Some nippling in fruit and some worm damage</td>
</tr>
<tr>
<td>HA 3302</td>
<td>ML</td>
<td>Blocky pear</td>
<td>3.0</td>
<td>4.0</td>
<td>4.0</td>
<td>Semi-Open</td>
<td>Some nippling in fruit and floppy vine</td>
</tr>
<tr>
<td>PS 150046</td>
<td>M</td>
<td>Long pear</td>
<td>4.0</td>
<td>3.5</td>
<td>4.0</td>
<td>Semi-Open</td>
<td>Floppy vine</td>
</tr>
<tr>
<td>Supra</td>
<td>M</td>
<td>Long pear</td>
<td>3.5</td>
<td>4.0</td>
<td>4.0</td>
<td>Good</td>
<td>Slightly pointed, medium size fruit</td>
</tr>
<tr>
<td>Monica</td>
<td>ML</td>
<td>Long blocky pear</td>
<td>4.5</td>
<td>4.0</td>
<td>4.0</td>
<td>Good</td>
<td>Very large and very smooth fruit, very good yield</td>
</tr>
</tbody>
</table>

1 M = Midseason Maturity  E = Early Maturity  EM = Early to Midseason Maturity  ML = Mid Late Maturity  L = Late Maturity  VL = Very Late Maturity
2 Fruit Smoothness: 1 = Bad; 5 = Excellent
3 Fruit Firmness: 1 = Soft; 5 = Very firm
4 Stemability: 1 = Hard Stemming (Many stems attached to fruit); 5 = Stems Easily
# Table 6B

**2000 FRESH MARKET TOMATO VARIETY TRIALS**  
LAGORIO FARMS/ACE TOMATO – FRENCH CAMP, CALIFORNIA  
**OBSERVATION TRIAL – “ROMA” LINES**

<table>
<thead>
<tr>
<th>Variety</th>
<th>Maturity</th>
<th>Fruit Shape</th>
<th>Fruit Smoothness</th>
<th>Fruit Firmness</th>
<th>Stemming</th>
<th>Vine Cover</th>
<th>Other Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>H-106</td>
<td>M</td>
<td>Long pear</td>
<td>3.0</td>
<td>4.0</td>
<td>4.0</td>
<td>Good</td>
<td>Dark green vine, fruit shape variable, good yield</td>
</tr>
<tr>
<td>H-107</td>
<td>EM</td>
<td>Blocky pear</td>
<td>2.5</td>
<td>3.5</td>
<td>4.0</td>
<td>Fair-Good</td>
<td>Rough fruit</td>
</tr>
<tr>
<td>H-113</td>
<td>EM</td>
<td>Blocky pear</td>
<td>2.5</td>
<td>4.0</td>
<td>4.0</td>
<td>Semi-Open</td>
<td>Some pointy fruit, not traditional fruit shape</td>
</tr>
<tr>
<td>H-117</td>
<td>EM</td>
<td>Square round</td>
<td>3.0</td>
<td>4.0</td>
<td>4.0</td>
<td>Good</td>
<td>Not traditional fruit shape</td>
</tr>
<tr>
<td>XP-671</td>
<td>ML</td>
<td>Long pear</td>
<td>3.5</td>
<td>3.5</td>
<td>4.0</td>
<td>Good</td>
<td>Smallish fruit, but good yield</td>
</tr>
<tr>
<td>BHN 523</td>
<td>EM</td>
<td>Blocky pear</td>
<td>3.5</td>
<td>4.0</td>
<td>4.0</td>
<td>Good</td>
<td>Not traditional fruit shape</td>
</tr>
<tr>
<td>HA 3307</td>
<td>M</td>
<td>Square round</td>
<td>3.5</td>
<td>4.0</td>
<td>4.0</td>
<td>Good</td>
<td>Floppy vine, slightly pointed fruit, not traditional fruit shape</td>
</tr>
<tr>
<td>Matador</td>
<td>M</td>
<td>Square round</td>
<td>3.0</td>
<td>4.0</td>
<td>4.0</td>
<td>Semi-Open</td>
<td>Smallish fruit, poor yield</td>
</tr>
<tr>
<td>Vaquero</td>
<td>EM</td>
<td>Blocky pear</td>
<td>3.5</td>
<td>4.0</td>
<td>4.0</td>
<td>Good</td>
<td>Smallish fruit, poor yield</td>
</tr>
<tr>
<td>RT 36</td>
<td>EM</td>
<td>Blocky pear</td>
<td>3.0</td>
<td>4.0</td>
<td>4.0</td>
<td>Open</td>
<td>Good yield, fruit quality variable</td>
</tr>
<tr>
<td>RT 42</td>
<td>EM</td>
<td>Blocky pear</td>
<td>3.0</td>
<td>3.5</td>
<td>4.0</td>
<td>Open</td>
<td>Variable fruit shape, floppy vine</td>
</tr>
<tr>
<td>Rio Oro 31</td>
<td>M</td>
<td>Square round/Blocky pear</td>
<td>3.0</td>
<td>3.5</td>
<td>4.0</td>
<td>Semi-Open</td>
<td>Floppy vine</td>
</tr>
<tr>
<td>Big Rio</td>
<td>ML</td>
<td>Square round</td>
<td>2.5</td>
<td>3.5</td>
<td>4.0</td>
<td>Good</td>
<td>Variable fruit shape</td>
</tr>
<tr>
<td>Rio Milagro</td>
<td>M</td>
<td>Blocky pear</td>
<td>3.5</td>
<td>3.5</td>
<td>4.0</td>
<td>Fair-Good</td>
<td>Some nipped fruit and not traditional fruit shape</td>
</tr>
</tbody>
</table>

1. M = Midseason Maturity  
2. E = Early Maturity  
3. EM = Early to Midseason Maturity  
4. ML = Mid Late Maturity  
5. L = Late Maturity  
6. VL = Very Late Maturity  
7. 1 = Bad; 5 = Excellent
8. 1 = Soft; 5 = Very firm
9. 1 = Hard Stemming (Many stems attached to fruit); 5 = Stems Easily
During the 2000 growing season, three fresh market tomato variety trials, evaluating selected round lines, were conducted. The early season trial was established by Michelle Le Strange, UC Cooperative Extension Farm Advisor in Tulare and Kings Counties, at Jones Farms (Richard Newton) near Kettleman City, California. The trial contained 10 replicated varieties and another 20 lines in an observation (single replication) block. The trial was transplanted on April 24, 2000, with the field variety being Sonnet. The trial field was irrigated throughout the season using subsurface drip and the trial was hand harvested on July 14, 2000. The second trial (midseason) was conducted by Bill Weir and Scott Stoddard, UC Cooperative Extension Farm Advisor and Research Associate in Merced County, respectively. The trial was located at Live Oak Farms (Bob Giampaoli) near Le Grand, California. The trial contained 9 replicated varieties with another 20 lines in an observation block. The trial was transplanted on May 17, 2000 and the trial site field was watered throughout the season using subsurface drip irrigation. The trial was hand harvested on August 8, 2000. The third trial (late season) was established, in cooperation with Lagorio Farms (Dean and Kathy Janssen, George Biagi) and Ace Tomato Company (Dean Janssen, Jeff Rurup) near French Camp, California, by Bob Mullen and Jesus Valencia, UC Cooperative Extension Farm Advisors in San Joaquin and Stanislaus Counties, respectively. The trial contained 10 replicated varieties and 21 additional cultivars in single replication observation plots. The trial was transplanted on June 2, 2000 and the field varieties were Shady Lady (three-quarters of the field) and the remaining field area was Monica, a “Roma” type line. The trial field site was furrow irrigated throughout the season and the plot was harvested by hand on September 6 and 7, 2000.

Not all replicated varieties were common to all trial locations but 8 lines were. Table A provides market yield performance of those eight varieties for the 3 trial locations combined, as well as for each individual trial. In the combined trial data, the best yielding variety in all locations was PS 150440 at 31.7 tons/acre (2,540 boxes) of marketable yield, followed by Qualit 21 (31.5 tons/acre or 2,492 boxes), Sonnet (29.0 tons/acre or 2,318 boxes) and Sunbrite (28.5 tons/acre or 2,276 boxes).

The observation varieties, common to all three trial locations, numbered 15 out of the 20 or 21 lines evaluated. Table B shows the market yield for these fifteen lines for the 3 trial locations combined, as well as for each individual trial. Highest yield of the common combined observational lines was provided by UGX 895 at 30.3 tons/acre (2,428 boxes) of marketable yield, followed by BHN 102 (29.5 tons/acre or 2,358 boxes), XPH 12298 (29.3 tons/acre or 2,341 boxes) and XPH 12254 (27.8 tons/acre or 2,221 boxes).

Individual trial reports from each of the participating Farm Advisors should be obtained and consulted with regard to variety performance in market yield, fruit sizing data and fruit quality observations for that particular trial location.
Table A.  2000 FRESH MARKET TOMATO VARIETY TRIALS
COMBINED AND INDIVIDUAL TRIAL YIELD DATA
REPLICATED VARIETIES
THREE LOCATIONS: KINGS, MERCED AND SAN JOAQUIN/STANISLAUS

<table>
<thead>
<tr>
<th>Variety</th>
<th>Seed Co.</th>
<th>Combined Market Yield/Acre</th>
<th>Kings (early season)</th>
<th>Merced (mid season)</th>
<th>San Joaquin (late season)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Tons</td>
<td>Boxes</td>
<td>Tons</td>
<td>Boxes</td>
</tr>
<tr>
<td>PS 150440</td>
<td>Petoseed</td>
<td>31.7</td>
<td>2540</td>
<td>31.3</td>
<td>2504</td>
</tr>
<tr>
<td>QualiT 21</td>
<td>Novartis</td>
<td>31.5</td>
<td>2492</td>
<td>31.4</td>
<td>2432</td>
</tr>
<tr>
<td>SRT 6624</td>
<td>Sunseeds</td>
<td>29.3</td>
<td>2305</td>
<td>31.0</td>
<td>2400</td>
</tr>
<tr>
<td>Sonnet</td>
<td>Asgrow</td>
<td>29.0</td>
<td>2318</td>
<td>28.7</td>
<td>2296</td>
</tr>
<tr>
<td>Sunbrite</td>
<td>Asgrow</td>
<td>28.5</td>
<td>2276</td>
<td>26.3</td>
<td>2104</td>
</tr>
<tr>
<td>Fair Lady</td>
<td>United</td>
<td>28.4</td>
<td>2271</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Genetics</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>QualiT 23</td>
<td>Novartis</td>
<td>27.7</td>
<td>2218</td>
<td>22.6</td>
<td>1808</td>
</tr>
<tr>
<td>Shady Lady</td>
<td>Sunseeds</td>
<td>27.0</td>
<td>2157</td>
<td>23.0</td>
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<td>RFT 7041</td>
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<td>1952</td>
<td>24.4</td>
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<tr>
<td>Hadas</td>
<td>D. Palmer</td>
<td>21.7</td>
<td>1739</td>
<td>18.0</td>
<td>1440</td>
</tr>
<tr>
<td>Vered</td>
<td>D. Palmer</td>
<td>20.3</td>
<td>1622</td>
<td>14.0</td>
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</tr>
</tbody>
</table>
## Table B

### 2000 FRESH MARKET TOMATO VARIETY TRIALS

**COMBINED AND INDIVIDUAL TRIAL YIELD DATA**

**OBSERVATION VARIETIES**

**THREE LOCATIONS: KINGS, MERCED AND SAN JOAQUIN/STANISLAUS**

<table>
<thead>
<tr>
<th>Variety</th>
<th>Seed Co.</th>
<th>Combined Market Yield/Acre</th>
<th>Kings (Early Season)</th>
<th>Merced (Mid Season)</th>
<th>San Joaquin/Stanislaus (Late Season)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Tons</td>
<td>Boxes</td>
<td>Tons</td>
<td>Boxes</td>
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<tr>
<td>UGX 895</td>
<td>United Genetics</td>
<td>30.3</td>
<td>2,428</td>
<td>30.6</td>
<td>2,448</td>
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<tr>
<td>BHN 102</td>
<td>BHN Seed</td>
<td>29.5</td>
<td>2,358</td>
<td>30.5</td>
<td>2,448</td>
</tr>
<tr>
<td>XPH 12298</td>
<td>Asgrow</td>
<td>29.3</td>
<td>2,341</td>
<td>28.8</td>
<td>2,304</td>
</tr>
<tr>
<td>XPH 12254</td>
<td>Asgrow</td>
<td>27.8</td>
<td>2,221</td>
<td>30.6</td>
<td>2,448</td>
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<td>Simone</td>
<td>United Genetics</td>
<td>26.9</td>
<td>2,156</td>
<td>27.4</td>
<td>2,192</td>
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<td>SRT 6677</td>
<td>Sunseeds</td>
<td>25.7</td>
<td>2,056</td>
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<td>1,856</td>
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<td>2,037</td>
<td>32.0</td>
<td>2,560</td>
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<td>2,027</td>
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<td>1,880</td>
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<td>RFT 8054</td>
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<td>2,013</td>
<td>26.3</td>
<td>2,104</td>
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<td>AT89</td>
<td>American Takii</td>
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<td>1,948</td>
<td>25.5</td>
<td>2,040</td>
</tr>
<tr>
<td>AT76</td>
<td>American Takii</td>
<td>24.3</td>
<td>1,945</td>
<td>27.8</td>
<td>2,224</td>
</tr>
<tr>
<td>AT71</td>
<td>American Takii</td>
<td>22.9</td>
<td>1,830</td>
<td>28.5</td>
<td>2,280</td>
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<tr>
<td>AT48</td>
<td>American Takii</td>
<td>22.2</td>
<td>1,776</td>
<td>19.3</td>
<td>1,544</td>
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<tr>
<td>AT10</td>
<td>American Takii</td>
<td>20.4</td>
<td>1,632</td>
<td>17.6</td>
<td>1,408</td>
</tr>
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<td>United Genetics</td>
<td>17.0</td>
<td>1,358</td>
<td>11.1</td>
<td>888</td>
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</table>
Late Blight (Phytophthora infestans) is a recurring problem in fresh market tomato growing areas of the northern San Joaquin Valley which produces for the mid summer to mid fall market. In 1998 the effects of El Niño were felt over a large area of the Central Valley, with widespread outbreaks of Late Blight in both processing and fresh market tomatoes from spring until late fall. The 2000 season was just the reverse. With warm dry weather the norm for most of the season, Late Blight only occurred sporadically in the upper Sacramento Valley and in a few late summer/fall market tomato fields near Stockton, California. The need for continued evaluation of new chemical and/or biological fungicides that could provide protective and/or systemic control of Late Blight remains a high priority because conditions for disease development could return quickly in the future. This year one trial, evaluating 11 chemical fungicides and/or alternating/combination treatments, was established at Marchetti Farms (Ron Marchetti), with the cooperation of West Coast Tomato of California, northwest of Stockton, California, in a market tomato field planted to the variety Sunbrite. Treatments were begun on September 5, 2000, when the crop was at mid fruit development (2.0 to 3.0 inch diameter crown fruit). A disease forecasting weather station was placed in the field south of the trial by Western Farm Service (Joe Schenone). Applications were made on a seven-day spray schedule with treatments broadcast over and into the tomato crop utilizing a handheld CO2 backpack sprayer with 8004 nozzles at 30 psi in a spray volume of 50 gallons/acre water. The soil type at the trial site was an Egbert muck, and the field was furrow irrigated on a 7 to 10 day schedule throughout the growing and fruit sizing season. After the initial treatment date, additional applications were made on September 12, 21 and 28, 2000. A minor outbreak of the disease occurred between the applications made on September 12 and 21, 2000. A spotty pattern of leaf and stem lesions was found, and the first disease severity rating was made on September 20 and again October 5, 2000. All treatments provided control of the limited disease pressure compared to the untreated check. Tanos (KP481) alone provided the highest level of disease management, followed very closely by the combination treatment of Previcur (propamacarb) plus Bravo Ultrex (chlorothalonil), Gavel (RH 141457) alone at both rates, the spray combination of Reason (fenamidone) plus Scala (pyrimethanil), Bravo Ultrex alone, the combination treatment of Previcur plus Scala, Reason alone plus X-77 at the high rate and the low rate of KQ667 (famoxadone + mancozeb) alone. Of the fungicides evaluated, Manzate (mancozeb) alone gave the least control of Late Blight. It should be stressed that the level of disease infection was not high and subsided with a following period of 3 weeks of dry, very warm weather. The trial was hand harvested on October 7, 2000. All treatments provided higher yields than the untreated control, led by the combination treatment of Previcur plus Bravo Ultrex, the alternating spray treatment of Bravo Ultrex plus Quadris (azoxyystrobin), and the high rate of Gavel alone. Fruit in all treatments were evaluated in the field for Late Blight infection and all treatments had no infected fruit or a very low level relative to the untreated control. Work on this disease, with candidate fungicides, will continue during the 2001 tomato season.
### 2000 Fresh Market Tomato Late Blight Control
Marchetti Farms/West Coast Tomato - Stockton, California

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rate lb./Acre</th>
<th>7 Day Spray Interval</th>
<th>Disease Severity(^1) Rating</th>
<th>% Infected Fruit(^2) @ Harvest</th>
<th>Marketable Yield(^2) (Red + Green) Tons/Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a.i.</td>
<td>9/20</td>
<td>10/5</td>
<td></td>
<td></td>
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<tr>
<td>Previcur (6L) + Bravo Ultrex (82.5WDG)</td>
<td>1.00 +</td>
<td>ABCD*</td>
<td>0.8</td>
<td>0.5</td>
<td>15.2</td>
</tr>
<tr>
<td></td>
<td>1.50</td>
<td></td>
<td></td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>Previous + Quadris (2.08SC)</td>
<td>1.00 +</td>
<td>AB D</td>
<td>1.3</td>
<td>1.0</td>
<td>13.9</td>
</tr>
<tr>
<td></td>
<td>0.10</td>
<td>C</td>
<td></td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Previous + Scala (40SC)</td>
<td>1.00 +</td>
<td>ABCD</td>
<td>0.8</td>
<td>0.6</td>
<td>13.2</td>
</tr>
<tr>
<td></td>
<td>0.27</td>
<td></td>
<td></td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Walabi (4.4SC)</td>
<td>0.94</td>
<td>ABCD</td>
<td>0.8</td>
<td>0.9</td>
<td>12.4</td>
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<tr>
<td>Reason (4.17E) + X-77</td>
<td>0.18 + ¼% v.v.</td>
<td>ABCD</td>
<td>1.1</td>
<td>0.8</td>
<td>13.2</td>
</tr>
<tr>
<td>Reason + X-77</td>
<td>0.27 + ¼% v.v.</td>
<td>ABCD</td>
<td>0.9</td>
<td>0.6</td>
<td>12.2</td>
</tr>
<tr>
<td>Reason + Scala</td>
<td>0.18 +</td>
<td>ABCD</td>
<td>0.6</td>
<td>0.5</td>
<td>14.2</td>
</tr>
<tr>
<td></td>
<td>0.13</td>
<td>C</td>
<td></td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>BAS 500 (20.7WDG)</td>
<td>0.15</td>
<td>ABCD</td>
<td>1.1</td>
<td>0.9</td>
<td>14.5</td>
</tr>
<tr>
<td>Gavel (75DF)</td>
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<td>ABCD</td>
<td>0.6</td>
<td>0.5</td>
<td>14.8</td>
</tr>
<tr>
<td>Gavel</td>
<td>2.25</td>
<td>ABCD</td>
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<td>0.5</td>
<td>14.9</td>
</tr>
<tr>
<td>Bravo Ultrex + Quadris</td>
<td>1.50 +</td>
<td>A C</td>
<td>1.3</td>
<td>0.9</td>
<td>15.1</td>
</tr>
<tr>
<td></td>
<td>0.10</td>
<td>B D</td>
<td></td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td>Tanos (50WG)</td>
<td>0.31</td>
<td>ABCD</td>
<td>0.6</td>
<td>0.4</td>
<td>14.7</td>
</tr>
<tr>
<td>Tanos + Manzate (75DF)</td>
<td>0.31 +</td>
<td>A C</td>
<td>1.3</td>
<td>0.8</td>
<td>12.6</td>
</tr>
<tr>
<td></td>
<td>1.50</td>
<td>B D</td>
<td></td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>KQ667 (68.8WG)</td>
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<td>0.6</td>
<td>14.5</td>
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<tr>
<td>KQ667</td>
<td>1.03</td>
<td>ABCD</td>
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<td>0.8</td>
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<td>ABCD</td>
<td>1.0</td>
<td>0.5</td>
<td>11.4</td>
</tr>
<tr>
<td>Manzate</td>
<td>1.50</td>
<td>ABCD</td>
<td>1.9</td>
<td>1.3</td>
<td>14.6</td>
</tr>
<tr>
<td>Untreated Control</td>
<td>---</td>
<td>----</td>
<td>3.1</td>
<td>2.6</td>
<td>11.0</td>
</tr>
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</table>

LSD @ 5%: 4.1  
C.V. = 21.1%

* A = week 1, B = week 2, C = week 3, D = week 4, ABCD = every week for 4 weeks

1 Average of four replications and the following disease severity rating scale:

### Disease severity rating - Barratt/Horsfall System

<table>
<thead>
<tr>
<th>Rating Scale</th>
<th>Grade</th>
<th>% Plant Infected</th>
<th>% Plant Healthy</th>
<th>Grade</th>
<th>% Plant Infected</th>
<th>% Plant Healthy</th>
<th>Grade</th>
<th>% Plant Infected</th>
<th>% Plant Healthy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100</td>
<td>4</td>
<td>12 to 25</td>
<td>75 to 88</td>
<td>8</td>
<td>88 to 94</td>
<td>6 to 12</td>
</tr>
<tr>
<td>1</td>
<td>0 to 3</td>
<td>97 to 100</td>
<td>5</td>
<td>5</td>
<td>25 to 50</td>
<td>50 to 75</td>
<td>9</td>
<td>94 to 97</td>
<td>3 to 6</td>
</tr>
<tr>
<td>2</td>
<td>3 to 6</td>
<td>94 to 97</td>
<td>6</td>
<td>6</td>
<td>50 to 75</td>
<td>25 to 50</td>
<td>10</td>
<td>97 to 100</td>
<td>0 to 3</td>
</tr>
<tr>
<td>3</td>
<td>6 to 12</td>
<td>88 to 94</td>
<td>7</td>
<td>7</td>
<td>75 to 88</td>
<td>12 to 25</td>
<td>11</td>
<td>100</td>
<td>0</td>
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</tbody>
</table>

2 Average of four replications
CAUTION

The report presents results of tomato disease studies conducted in San Joaquin County. It should not, in any way, be interpreted as a recommendation of the University of California. Chemical or common names of fungicides are used in this report instead of the more common trade names of fungicides. No endorsement of products mentioned or criticism of similar products is intended. The rates of fungicides in this report are always expressed as active ingredient (A.I.) of the material per treated acre, unless otherwise indicated.

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>Common or Chemical Name</th>
<th>Manufacturer</th>
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<tbody>
<tr>
<td>Quadris (2.08 SC)</td>
<td>azoxystrobin</td>
<td>Zeneca Ag Products</td>
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<tr>
<td>Gavel (75 DF)</td>
<td>RH 141457</td>
<td>Rohm and Haas Co.</td>
</tr>
<tr>
<td>Bravo Ultrex (82.5 WDG)</td>
<td>chlorothalonil</td>
<td>Zeneca Ag Products</td>
</tr>
<tr>
<td>Previcur (6L)</td>
<td>propamocarb</td>
<td>Aventis</td>
</tr>
<tr>
<td>KQ667 (68.8WG)</td>
<td>famoxate + mancozeb</td>
<td>DuPont Ag Products</td>
</tr>
<tr>
<td>Tanos (20 SC)</td>
<td>famoxate + cymoxanil</td>
<td>DuPont Ag Products</td>
</tr>
<tr>
<td>BASF 500 (20.7 WDG)</td>
<td>BASF 500</td>
<td>BASF Corporation</td>
</tr>
<tr>
<td>Reason (4.17EC)</td>
<td>fenamidone</td>
<td>Aventis</td>
</tr>
<tr>
<td>Scala (40SC)</td>
<td>pyrimethanil</td>
<td>Aventis</td>
</tr>
<tr>
<td>Walabi (4.4SC)</td>
<td>pyrimethanil + chlorothalonil</td>
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<td>DuPont Ag Products</td>
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ACKNOWLEDGMENTS

Many thanks and much appreciation is expressed to Dean and Kathy Janssen and George Biagi of Lagorio Farms and Dean Janssen and Jeff Rurup of Ace Tomato Company and Ron Marchetti of Marchetti Farms and Mike Stefani of West Coast Tomato of California and Joe Schenone (Western Farm Service) for all their cooperation and help in the conduct and evaluation of these trials and also to Brad Bonnett of Craven Transplants near Crows Landing, California for providing the high quality transplants used in the variety trials. Much gratitude is also expressed to the suppliers of seed and chemicals for the specific trials. Their continued monetary support, participation, cooperation and assistance is greatly appreciated.