

2013 Eastern NY Commercial Horticulture Program Fresh Market Beefsteak Tomato Variety Trial

Chuck Bornt, Laura McDermott, Crystal Stewart and Abby Foster

During the summer of 2013, the CCE ENYCHP evaluated 26 fresh market beefsteak tomato varieties for yield, fruit characteristics and eating quality. For more than half of the varieties, this was the second year of evaluations, while the other half were recent releases or still experimental lines from breeders and seed companies.

Trial Specifics: The trial was conducted at Altobelli Family Farms located in Kinderhook, NY (Columbia County), just south of Albany. This was the same location the trial was held the previous year. Seeds were planted on April 19, 2013 in 288 count cell trays. After several weeks in these trays they were potted on into 48 cell trays on May 16, 2013. Tomato transplants were planted on June 19, 2013 using a water wheel transplanter into raised beds mulched with black plastic with one row of drip tape. Fertility levels were established by the grower cooperator to achieve 120 pounds of nitrogen, 60 pounds of phosphorous and 120 pounds of potassium per acre. The majority of nitrogen and potassium was applied through the drip irrigation system during the growing season. Each plot consisted of 10 tomato plants and was replicated twice for a total of 20 plants per variety that was harvested and evaluated. Fungicide and insecticide applications were also applied by the grower cooperator based on scouting activity throughout the planting. Plants were pruned and staked in the Florida Basket Weave system.

The first harvest was September 4 followed by 3 additional harvests on September 11, 18 and 25, 2013. Tomato fruit were graded according to our grower cooperator standards which were:

- Extra Large** = fruit that were larger than 12 ounces and blemish free
- Large Fruit** = fruit that were 10 – 12 ounces each and blemish free (see Figure 1 for examples)
- Medium** = fruit that are 8 - 10 ounces and blemish free (see Figure 1 for examples)
- Small** = fruit that are 6 – 8 ounces and blemish free (see Figure 1 for examples)
- Seconds** = fruit that are generally within the above size categories but are cosmetically blemished (see figure 2)
- Culls** = fruit that unmarketable due to being undersized (less than 6 ounces to be a beefsteak), severe cracking, rain check, rot etc. (see Figure 3)

Results and Summary: Total overall yield and average fruit size for each variety can be found in Table 1. These values are based on the number of 25 pound boxes of tomatoes per acre per size category. Brief descriptions of the fruit and any other notes about the varieties can be found in Table 2.

The first thing to note about this trial is it was planted about 2 weeks later than what would have been optimal due to the fact that within the first several weeks of June 2013, over 13 inches of rain fell on this particular cooperators farm making it very difficult to prepare fields and prepare the raised mulched beds. However, the transplants were still very healthy when they were transplanted and suffered very little transplant shock. The late transplant date also resulted in a later harvest.

Varieties of note: Primo Red continues to be one of the more productive and early varieties with large fruit in this trial. The one characteristic to note with Primo Red is the strong tendency for the fruit to be somewhat pointed, especially the earliest ones. However, in my opinion this is tolerable due to its earliness, large fruit size and overall productivity. Volante did very well for us this year (did well in 2012 trials also) and is a productive, second early variety with large fruit size, with less tendency for pointed fruit. Mountain Majesty was new

for 2013 and ranked among one of the nicest tomatoes out of the 26 evaluated. It produced very attractive, large fruit, but the most noteworthy characteristic to note is the beautiful internal flesh color of this variety as a result of the “Crimson gene” which this variety contains. Red Mountain is also another new release from Harris Seeds and performed excellent in this trial with very attractive, large fruit. Red Morning was also nice, but overall fruit size was smaller compared to other varieties. Same was true for Seventy III. If you are looking for a later variety, Biltmore did very well in the two years of trialing in the Capital District region. If you are looking for a variety that ships well due to its firmness, Rockytop and Fletcher (slightly smaller) would be ones to try. Other varieties to note in this trial are Red Bounty, Mt. Fresh Plus and RFT 6153.

We were also very pleased with the overall fruit quality of Mountain Merit, a new release from Seedway. It is important to note that this variety has Late blight resistance, however the overall fruit size tends to be a little smaller with most of the fruit from this trial being in the “Medium” category. Another variety in this trial which many growers have asked us about with reported triple resistance (Early blight, Late blight and Septoria leaf spot), had slightly disappointing fruit size based on the sizing criteria used for this trial. Many of the Iron Lady fruit were categorized as “Culls” because they were too small (less than 6 ounces).

I would also like to take this opportunity to thank John and Becky Altobelli of Altobelli Family Farm and their crew for hosting this trial the last two years as well as the following participating seed companies: Harris Seeds, Seedway, Rupp Seeds, Siegers Seeds and High Mowing Seed Company. Without their support we would not be able to conduct and provide this information.



Figure 1: Examples of fruit grading according to size categories (Large top row, Mediums middle row and Small fruit on the bottom row). There are no Extra Large fruit in this picture.



Figure 2: Box of fruit determined to be seconds according to grading criteria.

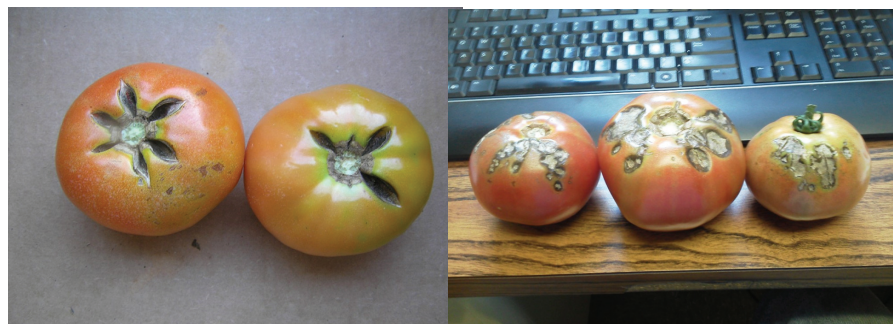


Figure 3: Cull fruit due to severe radial cracking and various other severe fruit blemishes'.

Table 1: 2013 Trial Results: Total Number of 25 Pound Boxes per Acre of Tomato Fruit by Size Class and Average Fruit Size for the Season from 4 Harvests at Altobelli Family Farms, Kinderhook, NY.

| Variety Name | # 25 lb Boxes Extra-LG | Extra-LG Average Fruit Size (ozs) | # 25 lb Boxes Large | Large Average Fruit Size (ozs) | # 25 lb Boxes Mediums | Medium Average Fruit Size (ozs) | # 25 lb Boxes Small | Small Average Fruit Size (ozs) | # 25 lb Boxes Seconds | Seconds Average Fruit Size (ozs) | # 25 lb Boxes Culls | Cull Average Fruit Size (ozs) |
|------------------|------------------------|-----------------------------------|---------------------|--------------------------------|-----------------------|---------------------------------|---------------------|--------------------------------|-----------------------|----------------------------------|---------------------|-------------------------------|
| BHN 589 | 0 | 0.0 | 83 | 11.7 | 180 | 9.7 | 140 | 6.7 | 163 | 8.3 | 80 | 4.3 |
| Biltmore | 8 | 18.4 | 139 | 11.9 | 255 | 10.0 | 91 | 7.0 | 159 | 9.3 | 48 | 4.5 |
| Brickyard | 7 | 17.6 | 15 | 11.7 | 185 | 10.1 | 109 | 6.5 | 260 | 9.1 | 120 | 6.4 |
| BSS1056 | 0 | 0.0 | 86 | 11.4 | 275 | 9.9 | 101 | 6.9 | 309 | 9.0 | 64 | 3.7 |
| Charger | 22 | 26.0 | 142 | 12.1 | 202 | 9.8 | 114 | 7.0 | 193 | 8.9 | 115 | 6.3 |
| EZ 025 | 0 | 0.0 | 39 | 11.5 | 245 | 9.4 | 223 | 6.5 | 142 | 7.9 | 89 | 5.2 |
| Fletcher | 7 | 16.8 | 43 | 11.5 | 207 | 9.7 | 162 | 6.2 | 104 | 7.3 | 58 | 3.3 |
| Iron Lady | 0 | 0.0 | 0 | 0.0 | 14 | 8.2 | 260 | 5.2 | 56 | 4.9 | 300 | 2.7 |
| Mountain Majesty | 7 | 17.6 | 203 | 12.1 | 240 | 10.2 | 53 | 6.3 | 93 | 10.1 | 48 | 4.5 |
| Mt. Merit | 0 | 0.0 | 37 | 11.0 | 202 | 9.6 | 160 | 6.8 | 198 | 8.4 | 85 | 5.1 |
| Mt. Fresh Plus | 7 | 16.8 | 71 | 11.4 | 269 | 10.2 | 84 | 6.9 | 261 | 9.7 | 47 | 3.4 |
| Mt. Glory | 0 | 0.0 | 45 | 11.9 | 209 | 9.6 | 109 | 6.2 | 64 | 9.0 | 56 | 4.8 |
| Primo Red | 0 | 0.0 | 61 | 11.2 | 156 | 9.6 | 96 | 6.1 | 160 | 8.5 | 87 | 5.2 |
| Red Bounty | 14 | 16.8 | 101 | 12.0 | 161 | 8.2 | 141 | 6.6 | 117 | 8.7 | 57 | 4.5 |
| Red Defender | 0 | 0.0 | 54 | 11.6 | 340 | 9.6 | 199 | 6.4 | 180 | 7.8 | 49 | 4.3 |
| Red Deuce | 7 | 16.8 | 136 | 12.1 | 153 | 10.1 | 83 | 7.3 | 292 | 10.0 | 129 | 7.0 |
| Red Morning | 7 | 16.8 | 94 | 11.8 | 216 | 9.4 | 152 | 6.5 | 82 | 8.2 | 51 | 5.1 |
| Red Mountain | 0 | 0.0 | 21 | 11.4 | 224 | 9.4 | 282 | 6.4 | 115 | 6.4 | 45 | 3.8 |
| RFT 6153 | 16 | 19.6 | 54 | 11.8 | 201 | 10.0 | 152 | 7.0 | 173 | 8.1 | 62 | 3.5 |
| Rocky Top | 0 | 0.0 | 29 | 11.6 | 199 | 9.9 | 127 | 6.3 | 57 | 6.2 | 84 | 6.7 |
| Scarlet Red | 36 | 17.0 | 67 | 11.4 | 165 | 10.1 | 97 | 7.3 | 227 | 9.8 | 105 | 5.3 |
| Seventy III | 0 | 0.0 | 17 | 11.4 | 175 | 9.3 | 163 | 6.3 | 80 | 6.9 | 20 | 4.0 |
| Summerpick | 0 | 0.0 | 32 | 11.7 | 284 | 9.7 | 169 | 6.6 | 236 | 7.7 | 96 | 5.8 |
| SV 4725 TD | 0 | 0.0 | 39 | 11.6 | 190 | 10.1 | 68 | 6.5 | 373 | 9.4 | 99 | 7.4 |
| SV 7101 TD | 0 | 0.0 | 71 | 11.4 | 240 | 9.7 | 178 | 6.7 | 260 | 8.3 | 67 | 4.6 |
| Volante | 0 | 0.0 | 86 | 11.4 | 207 | 9.7 | 134 | 6.7 | 120 | 9.0 | 68 | 4.4 |

Table 2: 2013 Trial Results: Comments on fruit characteristics of 26 tomato varieties grown at Altobelli Family Farms in Kinderhook, NY.

| Variety # | Seed Source | Days to Harvest | Comments |
|------------------|-------------------|-----------------|---|
| BHN 589 | Siegers | 74 | Medium- large stem scar, slight yellow halo around all of the stem scars even the dead ripe ones. Medium blossom scar, medium lobe, but round, mostly round, mostly firm, nice red color, slightly tall globe, round shape, fairly attractive looking - still |
| Biltmore | Siegers | 80 | Medium stem scar, small blossom scar, slightly tall but flat (not pointed), round slight lobe, nice red color, firm at dead ripe. Late variety, good size and decent overall fruit quality with some of the lowest cull and seconds box counts. |
| Brickyard | Syngenta | 75 | Potential for extra large and large fruit I think. Medium are nice, varied stem scar, mostly medium and large- fairly firm, dead ripe are somewhat soft, large blossom scar, slightly flattened, not much of a point, slightly oblong in shape, round - however |
| BSS 1056 | Seedway | 75 | Large-med large stem scar-small to medium blossom scar, more orange color than red- but very firm, tall flat- tall, mostly round, slightly oblong, subtle lobe on bottom. |
| Charger | Seedway | 76 | Not the most attractive tomato in the trial - Tall, flat shape. Large and dark colored (not attractive looking), large blossom scars. Blotchy ripening - not impressed, not very attractive overall looking. |
| EZ 025 | Rupp | 75 | Mostly small stem scar with slight yellow halo, med-large blossom scar, nice red color on ripe ones, mostly tall with slight point, but mostly flat - fairly firm. Fairly attractive overall but small overall fruit size. |
| Fletcher | Seedway | 72 | Small stem scar, light halo, firm, slightly lobed, small blossom scar, variable in shape- flats, slightly pointed, medium red, not bad looking overall - noted for being a "shipper" |
| Iron Lady | High Mowing Seeds | 75 | Small overall size fruit - fairly large stem scar for size of fruit with yellow halos and some yellowing on the shoulders. Mostly flat to slightly pointed with larger fruit being more flattened in shape. Orange color - overall not very attractive. Late |
| Mountain Majesty | Harris Seeds | 78 | Flesh color is very pretty - contains the "Crimson gene" - very attractive internally. Mostly small stem scar, but an occasional med-large one. Very small blossom scar - tall round, slightly pointed. Nice red color - overall fairly attractive and unif |
| Mt. Merit | Seedway | 75 | Fairly flattened to slightly tall round shape - somewhat lobed on larger fruit - nice dark red color and fairly firm even at dead ripe. Medium stem scar, small blossom scar. Smaller than Mountain Majesty but still good quality fruit. Late Blight Resi |
| Mt. Fresh Plus | Seedway/Harris | 77 | Slightly odd shaped, more angled - tall to slightly flattened, lobed, square shaped. Slightly yellow halo around medium to large stem scar and small to medium blossom scar. Fruit are firm, but lots of cracking |
| Mt. Glory | Seedway/Harris | 72 | Fairly attractive overall, medium stem scar and small blossom scar, mostly flattened and round slightly oblong. Medium red color with some orange flecking. |
| Primo Red | Seedway/Harris | 70 | Fairly tall, round, strongly pointed fruit. Small stem and blossom scar with slight yellow halo around stem scar. Fairly firm, decent red color and fairly uniform. Nice size, attractive outer appearance. Although overall size was smaller this year it i |

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|---------------------|-------------------------------|-----------|---|
| Red Bounty | Seedway/ Harris | 76 | Small stem scar, small-med blossom scar, orange color, fairly soft. Square shaped, rounded angled, not much lobe, variable with some pointed fruit. Not bad size and overall appearance, but fair amount of seconds and culls from cracking. |
| Red Defender | Seedway | 75 | Soft, rough stem scar large, small blossom scar, tall globe, slight lobe, "Doesn't do much for me", blotchy ripening (not uniform) - not very attractive overall |
| Red Deuce | Seedway/ Harris | 71 | Little yellow halo, small-med stem scar, med blossom scar, mostly tall, a little angled, not pointed-flat, fairly firm, fair amount of russeting and uneven ripening on stem side. Nice overall size but quite a few seconds and culls due to cracking. |
| Red Morning | Harris Seeds | 73 | Not bad looking- fairly attractive, oblong-long, small-medium stem scar, small blossom scar, slightly tall, not pointed, little lobe, orange, slightly soft - good size, slightly larger than Red Mountain, smaller, but more attractive and overall appearance |
| Red Mountain | Harris Seeds | 73 | Med-large stem scar, mostly small blossom scar, large are oblong/flat, smaller fruit are globe/pointed, fairly firm, med-dark red. Attractive, would like to see again in another year. |
| RFT 6153 | Seedway | 77 | Fairly large blossom scar, small-medium stem scar, flattened to slightly tall, fair amount of halo, firm, orange-ish - not the most attractive, but productive and generally large sized fruit - bred as the replacement for Mountain Fresh. |
| Rocky Top | Siegers | 76 | Fairly flat to tall round to oblong shape, with a slight lobe. Medium stem scar with slight yellow halo, variable blossom scar (mostly large). Firm, decent red color and fairly uniform ripening - pretty attractive. Good for shipping and holding - not th |
| Scarlet Red | Seedway/ Harris | 75 | Large rough looking stem scar, firm, medium orangey-red, little yellow halo, medium blossom scar, slightly oblong, little lobed - still one of the most attractive looking tomatoes but too susceptible to cracking. |
| Seventy III | Seedway / Syngenta | 73 | Attractive, small stem scar, small blossom scar, slightly tall but angled shoulders, fairly consistent in size categories- slight lobe but not bad- overall nice- nice medium red-orange color but somewhat soft when dead ripe. Overall size might be too sma |
| Summerpick | Seedway | 75 | Medium rough stem scar, medium blossom scar, firm, orangey-red, mostly tall, lobed, slightly pointed, variable with some flats, overall fruit size is small and too many seconds from cracking and blemishes |
| SV 4725 TD | Rupp | 75 | Large rough stem scar, fairly firm, medium blossom scar, tall-ish /round, a few slightly oblong, medium red - too many seconds due to cracking and other issues |
| SV 7101 TD | Rupp | 75 | Size is consistent, small-med stem scar, small blossom scar, tall globe, round to oblong, slight lobe, fairly firm, not bad looking. Slightly pointed (especially small/med), orangey-red, too many seconds due to cracking and other issues |
| Volante | Seedway | 74 | Fairly attractive, somewhat early, nice medium red color, small-medium stem scar, slight halo, small blossom scar, tall upright to slightly flattened oblong. Firm, nice color and uniform ripening. Good to fair flavor - would recommend trying - liked it |