EVALUATION OF GRAPE AND CHERRY TOMATOES IN NORTHERN NEW JERSEY 2003

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Introduction

The market for grape and cherry tomatoes has rapidly expanded. The main variety of grape tomato sold in supermarkets is 'Santa' which is no longer available to local growers. Evaluations were conducted to find a replacement variety for 'Santa' so local growers can capture this market.

Objectives

Evaluate the performance of varieties grape and cherry tomatoes in Northern NJ.

Materials & Methods

Seeds of twenty four varieties of grape and cherry tomatoes were sown on April 15, 2003 in 72-cell (1 1/2"X 1 1/2") trays containing peat-vermiculite media formulated for tomato transplant production. Seedlings were thinned to 1 plant per cell. Fertilizer at the rate of 50 lbs N, 100 lbs P_2O_5, and 100 lbs K_2O/acre was incorporated into the experimental area Seedlings were set with a water wheel transplanter into the field June 11, 2003. into raised beds 24" between plants and 6' between rows with trickle irrigation and black plastic mulch. Plots consisted of 8 plants and were replicated three times in a randomized complete block design. Plants were trellised on 7'stakes pounded 12"-18" deep into the beds. Pest management was done according to 2003 Commercial Vegetable Recommendations for NJ. Plants were visually evaluated for vine vigor, fruit cover and foliar disease and plant height was measured in feet in two of the plot replications. Plots were visually evaluated for overall yield. All breaker and ripe fruit were harvested from each plot on August 14, 2003. Fruits were separated into usable, and culls. Major defects were identified and recorded. A sample of 20 representative fruit from each plot was used to evaluate fruit size, external and internal characteristics. Subjective flavor evaluations were conducted on fruit. Three samples of ten ripe fruit were harvested from the plots on August 27, 2003. Fruit from each sample was macerated and the juice measured with a digital refractometer (Atago PR 101, ATAGO U.S.A., Inc., 13005 NE 126th Place, Kirkland, WA 98034 U.S.A.) to determine % brix.

Results & Discussion

Wet soil conditions delayed planting by fourteen days, and growth was slower than normal due to below average temperatures and cloudy conditions. Frequent rainfall during the harvest season caused fruit cracking, which was the most serious defect of most varieties in the trial. Based on plant height (Table 1) BHN 268, BHN YC1, Cherry Blossom, Jolly Elf, St. Nick and Sweet Olive could be grown on short stakes (4 ft.). All other varieties would require 6 foot or taller stakes. Vine vigor (foliage density) varied greatly between varieties. There was a trend toward Sweet Olive, Red Grape, Sun Cherry, Jolly Elf, Cupid F, and S 151496 having lower vigor (foliage density) than most of the other varieties in the trial.

The most frequent reason for non-marketable fruit was fruit cracking. Yellow eye, small fruit and green shoulders also contributed to culls in some varieties.

The higher brix levels (Table 3.) corresponded closely with favorable flavor evaluations. This is probably because most consumers look for high levels of sweetness in grape and cherry tomatoes.

Table 1. Plant Growth and Yield Characteristics, Grape and Cherry Tomato Trial 2003, Snyder Research and Extension Farm, Pittstown, NJ

Variety	Seed Source	Plant[1] Height	Plant [2] Vigor	Season[3]	Yield
BHN 268	BHN Seeds	3.5	2.5 de[4]	Mid	Medium
BHN YC1	BHN Seeds	3.7	2.5 de	Early-Mid	High
Camelia	Siegers	5.5	3.5 bcd	Mid-Late	Medium
Cherry Blossom	Sakata	3.7	3.0 cde	Mid	Medium
Favorita	Johnny's	5.1	3.0 cde	Early-Mid	High
S 151496	Seminis	5.1	4.5 ab	Early-Mid	High
Sun Cherry	Johnny's	5.7	1.0 f	Mid	Medium
Sweet 100	Stokes	5.6	2.5 de	Mid	Low
Sweet Million	Stokes	5.7	2.5 de	Mid	Medium
Jolly Elf	Siegers	4.1	2.5 de	Mid	High
Juliet	Johnny's	5.4	5.0 a	Mid-Late	Medium
Morning Light	Siegers	5.9	2.0 ef	Mid	Low-Medium
Red Grape	Johnny's	5.0	3.0 cde	Mid-Late	Medium
St. Nick	Siegers	4.4	3.5 bcd	Mid	Medium
Cupid F (S 2036)	Seminis	5.0	3.5 bcd	Mid	Medium-High
Sweet Olive	Johnny's	4.1	2.0 ef	Early	Medium-High
Tami G	Seedway	5.5	4.0 abc	Mid-Late	Medium
Cherry Brandywine	Marianna's	6.2	2.5 de	Mid-Late	Low
Isis Candy	Tomato Growers Supply Co.	6.7	4.0 abc	Late	Low
Snow White	Marianna's	6.1	4.5 ab	Late	Low
Juane Flamme	Seed Savers	5.1	2.5 de	Late	Low-Medium
Garden Peach	Seeds of Change	5.2	1.0 f	Late	Low-Medium
Dr. Carolyn	Marianna's	5.8	5.0 a	Late	Low-Medium

[1]Plant height in feet was measured on September 16, 2003.
[2]Plant vigor is density of foliage 5 = Excellent, 4 = Very Good, 3 = Good, 2 = Fair, 1 = Poor .
[3]Season and yield evaluated on August 26, 2003
[4]Mean separation in columns by Duncan's multiple range test at P=0.05

Table 2. Fruit Characteristics, Grape and Cherry Tomato Trial 2003, Snyder Research and Extension Farm, Pittstown, NJ

Variety	Color[1] Type	Fruit[2] Shape	Fruit Weight (g)	Fruit[3] Firmness	External Appearance
BHN 268	R	C	28.6	5.0 a[5]	1.0 e
BHN YC1	G/Y	C	13.2	5.0 a	4.3 ab
Camelia	R	LC	20.6	4.0 c	2.0 d
Cherry Blossom	R	LC	11.2	-	-
Favorita	R	C	14.5	1.0 f	5.0 a
S 151496	R	C	16.9	3.0 d	4.3 ab
Sun Cherry	R	C	15.0	1.0 f	1.7 d
Sweet 100	R	C	9.7	1.7 e	3.0 c
Sweet Million	R	C	15.7	1.0 f	2.0 d
Jolly Elf	R	E,G	15.4	4.7 ab	1.7 d
Juliet	R	E	30.2	4.3 bc	4.3 ab
Morning Light	G/Y	E,P	14.5	3.0 d	4.3 ab
Red Grape	R	G	10.4	5.0 a	4.7 ab
St. Nick	R	G	12.0	5.0 a	3.0 c
Cupid F (S 2036)	R	G	13.3	4.0 c	5.0 a
Sweet Olive	R	G	14.3	4.0 c	4.0 b
Tami G	R	G	11.2	5.0 a	3.0 c
Cherry Brandywine	R	O	-	-	-
Isis Candy	R	C	-	-	-
Snow White	Y	C	9.5	2.0 e	5.0 a
Juane Flamme	O	R	-	-	-
Garden Peach	Y	R	-	-	-
Dr. Carolyn	Y	LC	-	-	-

[1]R=Red, Y=Yellow, OR=Orange, G=Golden
[2]R=Round, DR=Deep Round, E=Elongated, P=Pear, C=Cherry, LC=Large Cherry, O=Oblate, G=Grape
[3]Fruit Firmness, 5 = Firm, 4 = Medium Firm, 3 = Medium, 2 = Medium Soft, 1 = Soft
[4] External Appearance, 5 = Excellent, 4 = Very Good, 3 = Good, 2 = Fair, 1 = Poor
[5]Mean separation in columns by Duncan's multiple range test at P=0.05

Table 3. Fruit Brix Level and Flavor Evaluations, Grape and Cherry Tomato Trial 2003, Snyder Research and Extension Farm, Pittstown, NJ

Variety	Brix	Flavor Description
BHN 268	6.5 efg[1]	Bland
BHN YC1	4.4 l	Bland, some tomato flavor
Camelia	6.2 gh	bland, some tomato flavor
Cherry Blossom	4.2 l	strong flavor note
Favorita	8.3 ab	very sweet, fruity floral flavor
S 151496	6.8 cdef	mild tomato taste, on the sweet side
Sun Cherry	8.5 ab	sweet, not much tomato flavor
Sweet 100	8.7 a	sweet, strange after taste
Sweet Million	8.1 ab	sweet balance
Jolly Elf	6.2 ghi	very firm, not juicy, bland, crunchy
Juliet	6.6 defg	firm, mild, some tomato flavor
Morning Light	5.8 ihj	very strange bacon or smoke flavor
Red Grape	8.0 b	very good balanced tomato flavor
St. Nick	7.0 cde	very good balanced tomato flavor
Cupid F (S 2036)	7.2 cd	very good balanced, tomato flavor
Sweet Olive	6.6 defg	sweet, slightly bland
Tami G	7.3 c	sweet, slightly bland
Cherry Brandywine	5.6 ijk	not ripe
Isis Candy	6.7 defg	not ripe
Snow White	8.1ab	acidic, fruit not fully ripe
Juane Flamme	5.4 jk	not ripe
Garden Peach	5.0 k	not ripe
Dr. Carolyn	5.9 hij	not ripe

[1]Mean separation in columns by Duncan's multiple range test at P=0.05

Conclusion

The following varieties within each fruit type show promise for commercial production.

Red Cherry – Favorita, S 151496, Sweet Million
Yellow Cherry - BHN YC1 (yellow), and Snow White (yellow). Dr. Carolyn an heirloom variety was attractive and large with some crack resistance, however the fruits were soft.
Large Red cherry/Saladette – The variety Cherry Blossom produced high yields of attractive fruits however some cracking was present. Camelia showed some promise but had a significant number of fruits with green/yellow shoulders
Red Grape – Cupid F, St. Nick, Tami G were the most promising varieties in 2003. Tami G showed some variability in size and Sweet Olive and Jolly Elf had some yellow eye and more cracking than the other grape varieties.
Yellow Grape - Morning Light, had attractive fruits with low cracking, but the taste evaluations were highly unfavorable.
Large grape – Juliet, a saladette size variety produced very high yields of attractive crack resistant fruits.

The following varieties were not suitable for commercial use due to low yields or some defect in fruit characteristics: Isis Candy, Garden Peach, Cherry Brandywine, Juane Flamme, BHN 268, Sweet 100, Red Grape and Sun Cherry.

Grape & Cherry Tomato Pictures


Jolly Elf


Juliet


Morning Light


Red Grape


St. Nick


S 2036


Sweet Olive


Tami G


Cherry Brandywine


Isis Candy


Snow White


Juane Flamme


Garden Peach


Dr. Carolyn