APPENDIX A.2

2002 SPECIALTY TOMATO VARIETY TRIAL SUMMARY[1]

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INTRODUCTION

Commercial varieties and advanced breeding lines of tomatoes for the fresh specialty type market were evaluated for adaptation to New Jersey growing conditions. A total of twenty six promising lines were included in the trial, conducted at Rutgers Agricultural Research and Extension Center, Bridgeton NJ.

METHODS

Culture

Seeds were sown on April 11, in 72-cell (1½" X 1½") trays containing peat-vermiculite media formulated for tomato transplant production. Seedlings were thinned to 1 plant per cell. Sixty-five pounds of N per acre plus P_2O_5 and K_2O based on soil tests were disked into the sandy loam soil. Devrinol 50DF (3 lb/A), and Sencor 4F (0.33 lb/A), were applied and incorporated during bedding. Black plastic mulch and drip irrigation tube were laid. Transplants were set 24" apart on raised beds with 5-ft centers on May 28. Plants were grown on 4 or 5 foot stakes depending on variety characteristics. The plants were pruned to allow three axillaries to develop below the main fork. Four applications of 40 pounds/A of N, P_2O_5 and K_2O were applied through the drip system during the growing season. Insects were controlled as required using commercial recommendations for tomatoes. Fungicides were applied for suppression of foliar diseases and fruit rots. Rainfall was 3.9, 6.1, 2.1, 3.0 and 2.5 inches in May, June, July, August, and September respectively.

Experimental, Harvesting and Evaluation

Field plots were replicated two times in a randomized block design. Data were obtained on foliage and fruit characteristics for all of the varieties in the trial. Yields, external and internal fruit characteristics were also obtained for all lines. Hand harvests of each plot of all fruits were made on July 30 when early fruits were ripening. All fruits with pink to red maturity were harvested. Sample hand harvest of 10-12 pounds per plot was made on August 28. Fruits were separated into usable, and culls. Major defects were identified and recorded. A sample of representative fruit from each plot was used to evaluate fruit size, (50 fruit) external and internal characteristics (25 fruit).

Plant Vigor	White Tissue	Interior Color	Fruit Firmness
5 = Excellent	5 = Excellent	5 = Excellent	5 = Firm
4 = Very Good	4 = Very Good	4 = Very Good	4 = Medium Firm
3 = Good	3 = Good	3 = Good	3 = Medium
2 = Fair	2 = Fair	2 = Fair	2 = Medium Soft
1 = Poor	1 = Poor	1 = Poor	1 = Soft

[1]This work supported by the New Jersey Agricultural Experiment Station Program Enhancement Grant; [2]Extension Specialist in Vegetable Crops, Emeritus; [3]Cumberland County Agricultural Agent and [4]Research Technician in Horticulture

Plant vigor and fruit characteristics, vascular white tissue (VW), color and firmness were evaluated and rated according to the above chart. Height is an average of a sample of plants from two replications.

RESULTS

Data from the first harvest of the trial are summarized in tables 1 and 2. There were statistical differences among varieties for all characteristics.

Table 1. Plant Vigor and Early Yield and Fruit Size, Specialty Tomato Trial 2002

Variety	Seed Source	Plant[1] Height	Plant Vigor	Early Market Yield Lbs/A	% Market Yield
BHN 268	BHN Seeds	3.5	2.5	1561	79
Camelia	Siegers	5.0	3.5	1035	93
Cherry Grande	Stokes	3.8	3.0	3322	49
Cherry Pink	Stokes	2.0	1.0	11689	87
Favorita	Johnny's	5.5	3.0	3939	99
Gold Nugget	Johnny's	3.3	1.5	24176	99
Jolly Elf	Siegers	5.0	2.0	1561	88
Juliet	Johnny's	5.8	4.5	2051	99
Mini Charm	Seedway	6.3	4.5	1234	94
Moncherry	Stokes	6.8	5.0	1489	89
Naomi	Siegers	6.3	4.0	1017	90
Red Current	Johnny's	6.9	4.5	273	79
Red Pear	Johnny's	6.0	5.0	363	74
S – 2036	Seminis	5.5	4.0	2995	93
Santa	BHN Seeds	6.3	4.5	1924	94
St. Nick	Siegers	6.8	4.5	1362	94
STM 5403	Siegers	3.8	3.0	1452	90
Sun Gold	Johnny's	6.3	4.5	2723	71
SVR 151496	Seminis	6.5	5.0	2814	97
Sweet 100	Stokes	6.3	4.5	944	90
Sweet Million	Stokes	5.5	4.0	3812	98
Sweet Olive	Johnny's	3.5	1.5	4665	91
Swifty Belle	Stokes	1.5	1.0	8331	96
Tami G	Seedway	6.8	3.5	1379	91
Yellow Current	Johnny's	6.3	4.0	73	39
Yellow Pear	Johnny's	6.8	5.0	73	34
LSD 5%	--	1.2	1.5	2216	25
HSD 5%	--	2.3	3.0	4422	51

[1]Plant height in feet at the end of the growing season.

Gold Nugget, Cherry Pink and Swifty Belle all had high early yields. The varieties, Yellow Current, Sun Gold, Yellow Pear, Red Current, Red Pear and Cherry Grande tended to have lower % marketable in the first harvest (Table 1).

Fruit size (grams/50 fruits) varied significantly: Cherry Grande, Swifty Belle, STM 5403, Juliet, and BHN 268 were the largest at 1300 – 1500 grams per 50 fruits. Naomi, Camelia,

Table 2. Fruit Characteristics Vigor – Specialty Tomato Trial – 2002

Variety	Color[1] Type	Fruit[2] Shape	Jointed[3]	Grams/50 Fruit	Firmness	Internal Color	White Tissue
BHN 268	R	R	JL	1299	5.0	3.0	4.0
Camelia	R	R	J	1106	5.0	3.0	4.0
Cherry Grande	R	R	J	1573	2.0	5.0	5.0
Cherry Pink	P	DR	J	950	1.0	4.0	2.5
Favorita	R	DR	J	668	3.0	3.0	4.0
Gold Nugget	Y	R	J/S	515	2.0	3.0	5.0
Jolly Elf	R	E	J	680	5.0	3.0	3.5
Juliet	R	E	J	1476	3.0	4.0	4.5
Mini Charm	R	DR	J	321	3.0	3.0	5.0
Moncherry	R	DR	J	330	3.0	3.0	5.0
Naomi	OR	R	J	1117	4.5	1.0	4.0
Red Current	R	R	J	216	3.0	3.0	5.0
Red Pear	R	P	JL	565	1.0	2.0	4.5
S – 2036	R	E	J/S	489	4.5	3.0	5.0
Santa	R	E	J	644	4.0	3.5	5.0
St. Nick	R	E	J/S	587	4.5	3.0	4.0
STM 5403	R	R	J	1532	3.0	4.0	5.0
Sun Gold	OR	R	J/S	470	1.0	4.0	5.0
SVR 151496	R	R	J/S	842	3.0	4.0	5.0
Sweet 100	R	R	J/S	464	2.5	3.0	3.5
Sweet Million	R	R	J	714	2.5	2.0	4.0
Sweet Olive	R	E	J	635	4.5	3.0	4.0
Swifty Belle	R	R	J	1550	1.5	5.0	5.0
Tami G	R	E	J/S	482	4.5	3.0	4.5
Yellow Current	Y	R	J/S	243	3.5	3.0	5.0
Yellow Pear	Y	P	JL	526	1.0	5.0	5.0
LSD 5%	--	--	--	105	0.7	0.3	0.7
HSD 5%	--	--	--	211	1.4	0.6	1.4

[1]R=Red, Y=Yellow, OR=Orange
[2]R=Round, DR=Deep Round, E=Elongated, P=Pear
[3]J=Jointed, J/S=Jointed/Stem separated from fruit, JL=Jointless

Cherry Pink were in the range of 900 – 1100 grams/50 fruits. Red Current, Yellow Current, Mini Charm and Moncherry were all less than 350 grams/ 50 fruits (Table 2). These four varieties are too small for efficient commercial harvesting.

Fruit firmness (Table 2) is required for commercial harvesting and marketing. The following varieties were rated either poor or fair in firmness and thus less suitable for commercial production: Cherry Pink, Red Pear, Yellow Pear, Sun Gold, Swifty Belle, Cherry Grande and Gold Nugget.

A number of varieties had some green locular jelly (data not shown). However this defect was not considered important in grape and cherry tomatoes that are eaten whole. The internal color of Naomi was pale and Cherry Pink had some white tissue.

Based as the observations in Tables 1 and 2, the most promising cherry varieties for trial for commercial production include: BHN 268, Camelia, Favorite, STM 5403 and SVR 151496. The most promising grape type varieties include: Jolly Elf, Juliet, S-2036, Santa, St. Nick, Sweet Olive and Tami G. Santa is not generally available at the present time.