

Evaluation of Fourteen Tomato Cultivars in Southwest Michigan

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Objective

Evaluation of 14 tomato varieties for adaptability to Southwest Michigan growing conditions. Varieties included 12 fresh market and two saladette types.

Summary

No differences were found between the two saladette tomatoes in the trial. However, significant differences were found in all traits evaluated in the fresh market entries. Total yield for fresh market entries ranged from 1612 to 2341 cartons per acre. Number one fruit yield ranged from 784 to 1294 cartons per acre. Average number one fruit weight ranged from 250 to 311 grams per fruit, and number one fruit firmness ranged from 1.36 to 2.31. 'Mountain Glory,' 'Linda,' SVR 1400, 'Fletcher,' and BSS-832 were among the leaders in several categories. The trial identified varieties growers should try as a compliment to the industry standard 'Mountain Spring.'

Methods

Fertilizer

Prior to planting, 0-0-60, sulfur, and Solubor were broadcast and incorporated at 300 pounds, 25 pounds, and 20 pounds per acre, respectively. Pre-plant nitrogen was supplied through a hairy vetch cover crop planted in August 2007. After planting, 37 pounds per acre of nitrogen and 74 pounds per acre of potassium were applied through the drip system as 4-0-8-2(Ca). Fertigation began June 16 and ended September 2.

Fumigation/Weed Control

Beds were fumigated with 300 pounds per acre 67/33% methyl bromide/chloropicrin at bed shaping and plastic laying. Between row weeds were controlled through cultivation and hand hoeing.

Planting

Seed was started in a greenhouse in 72-cell trays on April 14 and planted to the field June 2. Beds were 6 inches high and spaced 5.5 feet on centers. Plants were set 18 inches between plants (5280 plants/acre). The plants were staked, tied, and pruned to one sucker below the first flower cluster. The trial was planted and analyzed as a completely randomized design with eight plants per plot and four replications. Plots were separated by two guard plants. Fresh market and saladette tomatoes were analyzed separately.

Plant Care

Plots were irrigated daily and pests controlled using standard commercial practices.

Harvest and Data Collection

Harvest was conducted four times: August 21, August 28, September 2, and September 9. Fruit was graded and weighed for each category. Pressure readings were taken on the third harvest on 10 ripe, number one large fruit from each plot. Pressure readings were made using an IMADA Series DPS push/pull force gauge equipped with a 12 mm diameter tip.

Results

In general, 2008 was a difficult year for tomato production in southwest Michigan. May and June were cool, which delayed planting two weeks. The rest of the season continued to be cool, and during peak production the trial experienced 10 inches of rain with 6.79 inches coming from September 12 to 15. Due to the extreme amount of cracking and lowered fruit quality caused by rain, a decision was made to stop at four harvests.

The two saladette tomatoes were statistically different only in yield of number two fruit where BSS-712 was higher than 'Tormenta' (Table 1). However, significant differences were found in all traits measured in the fresh market varieties (Table 2). Total yield ranged from 1,612 to 2,341 cartons per acre. 'Mountain Glory' had the highest total yield; however, 'Linda,' SVR 1400, 'Fletcher,' and BSS-832 were not statistically different. 'Mountain Glory' also was among the leaders in yield of number one (1,294 cartons/acre), and number two fruit (474 cartons/acre), fruit weight (293 grams per fruit), and firmness (2.31 kilograms). Other leaders in yield of number one fruit were 'Linda,' SVR 1400, and 'Fletcher.' Leaders in fruit weight included BSS-832 at 311 grams, SVR 1400, 'Fletcher,' and 'Rocky Top.' Entries with similar firmness to 'Mountain Glory' were 'Linda,' 'Fletcher,' and 'Mountain Spring'.

'Mountain Spring' is the industry standard for southwest Michigan, accounting for about 80% of fresh market tomato production — a position it has held for more than 15 years. This trial indicates there are other genotypes southwest Michigan growers should consider trying in their production systems. Many of the newer types are equal to 'Mountain Spring' in the traits evaluated, and some entries are superior for some traits.

Table 1. Yield (in 25-pound cartons) of 2 saladette tomato varieties grown at the Southwest Michigan Research and Extension Center, Benton Harbor, Michigan in 2008. Plant density was 5280 plants per acre.

Variety	Source	Total Yield	Yield No. 1	No. 1 Fruit Weight	Yield No. 2	Yield Cull	Firmness
BSS-712	BE	2132	1256	108	537	339	2.97
Tormenta	BE	1494	1035	104	275	184	3.51
lsd=0.05		ns	ns	ns	258	ns	ns

Table 2. Yield (in 25-pound cartons) of 12 fresh market tomato varieties grown at the Southwest Michigan Research and Extension Center, Benton Harbor, Michigan in 2008. Plant density was 5280 plants per acre.

Variety	Source	Total Yield	Yield No. 1 Large ¹	No. 1 Fruit Weight (grams)	Yield No. 2	Yield No. 1 Small ²	Yield Cull	Firmness (kilograms)
Mt. Glory	SY/RG	2341	1294	293	474	304	276	2.31
Linda	SK	2166	1184	281	373	309	300	2.24
SVR 1400	RU	2053	1165	327	374	202	313	1.36
Fletcher	BE	2038	1067	289	368	260	344	1.82
BSS-832	BE	2029	944	311	413	190	482	1.81
Fletcher	SW	1972	1120	268	344	214	294	1.94
Polbig	BE	1934	985	250	279	370	300	1.66
Townsville	BE	1932	624	254	285	699	324	1.70
Mt. Spring	SY/RG	1884	988	252	307	291	297	2.17
Rocky Top	SY/RG	1788	822	290	337	269	360	1.72
Reba	SK	1620	867	271	246	246	261	1.77
BHN 826	JS	1612	784	265	264	285	279	1.76
lsd=.05		376	283	44	98	130	101	0.42

¹Fruit more than 2.5 inches in diameter.

²Fruit less than 2.5 inches in diameter.