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2019 High Tunnel Fresh Market Determinate Tomato Cultivar Trial for Southern Illinois

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A determinate tomato cultivar trial was conducted at the University of Illinois Dixon Springs Agricultural Center (DSAC) located in Southern Illinois (Pope County) during the 2019 growing season. The objective of this trial was to compare performance of eight fresh market determinate tomato cultivars in a high tunnel production system.

Transplants used in the trial were grown at DSAC and set on April 3, 2019. Plants were grown on in-ground raised beds with two runs of trickle irrigation (4-inch emitter spacing) per bed and without plastic mulch within a high tunnel. Plants were set 21 inches apart in a single row per bed. The spacing between beds within this high tunnel is 20 inches, making the spacing between rows 3.5 feet. Plants were grown using a trellis weave and pruned to below first cluster. All plots were in a randomized complete block design and replicated three times.

Pest control practices followed recommendations given in the *Midwest Vegetable Production Guide for Commercial Growers 2019*. The plots were harvested 27 times during the period from June 21 to October 1, 2019. The harvested fruit was sorted and graded based on USDA grades and standards for U.S. No. 1 and U.S. No. 2 tomatoes <https://www.ams.usda.gov/grades-standards/tomato-grades-and-standards>, and yield data was recorded accordingly. U.S. No. 1 fruit was a minimum of eight ounces in size, well formed, well developed, and showed no signs of decay or injury.

Cultivars are listed in descending order of total pounds per plant of U.S. No. 1 fruit harvested in Table 1. ‘Red Mountain’ and ‘SV 7101’ showed high yields during the early season harvest period the last two weeks of June. For midseason harvest, the month of July in this trial, ‘Mountain Gem’, ‘Camaro’, and ‘Carolina Gold’ had the highest yields in pounds per plant. ‘Mountain Gem’, ‘Mountain Merit’, ‘Roadster’, and ‘Pinkalicious’ fruits tended to have an issue with cracking, which can be seen in the high number of culls per plant listed in Table 1. Observations made during the season indicate that ‘Red Mountain’ and ‘SV 7101’ were both smooth and uniform. Chart 1 provides a comparison of yield in pounds per plant between U.S. No. 1 and U.S. No. 2 grades to the total marketable weight for each cultivar in the trial.

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J. Zakes and K. Bell assisted with field work and data collection on site at the Dixon Springs Agricultural Center. Seedway donated the seed used in this trial.

Table 1. Results of 2019 High Tunnel Fresh Market Determinate Tomato Variety Trial-DSAC.

2019 High Tunnel Fresh Market Determinate Tomato Variety Trial-DSAC*						
	Early-Season (6/21-6/28)	Mid-Season (7/1-7/30)	Total No. 1 Yield**	Total Marketable Yield	Culls	Fruit Size
	-----U.S. No. 1-----			U.S. No. 1 & No. 2		U.S. No. 1
Cultivar	-----(<i>lbs per plant</i>)-----				<i>no./plant</i>	<i>-(oz/fruit)-</i>
SV 7101	2.20	6.79	16.35	25.16	7.58	10.41
Camaro	0.66	7.68	15.20	24.21	8.30	10.94
Mountain Gem	0.42	8.98	13.89	24.97	17.53	10.88
Red Mountain	3.02	4.88	12.02	24.11	7.83	9.71
Mountain Merit	1.20	5.23	11.20	27.12	12.50	9.56
Carolina Gold	0.97	7.47	10.90	25.92	12.92	10.19
Roadster	0.90	5.34	10.82	27.28	13.92	9.74
Pinkalicious	0.29	1.72	3.87	14.60	17.00	9.25
*3 replication average						
**descending order based on Total Yield No. 1.						

Chart 1. Total U.S. No.1 Yield Compared to Total U.S. No.2 Yield in Overall Total Marketable Weight

