Eastern Muskmelon Trials for Southwestern Indiana, 2007

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Indiana is a leader in the nation for the production of eastern muskmelon, with Knox, Sullivan, and Gibson counties ranking in the nation's top 100 melon producing counties. The evaluation of newly released varieties and advanced experimental breeding lines in an independent assessment is extremely valuable for growers and seed producers in the commercial melon industry. The objective of this study was to comparatively evaluate and identify potential new cultivars and advanced experimental breeding lines that may be adaptable to the growing conditions in southwestern Indiana. Growers are seeking high yielding, high quality, early maturing types with excellent disease resistance and acceptable keeping quality during shipping and storage. Fruit need to be medium to large and have high uniformity in both size and shape. Traditionally, markets have demanded fruit with heavy netting and distinct ridges. Melons that can be stored and held easily for longer periods, and those that can be harvested at a slightly earlier slip-stage and still retain acceptable quality, would also be desirable.

Experiment Setup

Sixteen eastern muskmelon cultivars and advanced experimental lines were evaluated in a randomized complete block design with three replications. Each entry was first direct seeded in the greenhouse on April 17, 2007, and transplanted into the field on May 14. Plots consisted of single, 55-foot long rows, covered with 4-foot wide black plastic mulch. Rows were centered 6 feet apart, and between-plant spacing (within a row) was 2.5 feet, allowing 22 plants per row. Each variety and experimental line was grown in accordance with the recommendations outlined in the 2007 *Midwest Vegetable Production Guide for Commercial Growers* (Purdue Extension publication ID-56). Trickle irrigation lines placed beneath the plastic mulch provided water as needed. Fruits were harvested three times per week by hand from July 9 through August 3, 2007. Data were analyzed with the SAS Software package (SAS Corp., Cary, NC).

Results

High Yield, Earliness, and Internal Quality Rating

The average yield was 23.0 tons per acre, with a range of 20.9 tons to 26.5 tons per acre (Table 1). The mean fruit weight was 6.6 pounds per fruit, with a range of 5.2 to 7.7 pounds per fruit. This translated to 4,884 to 9,504 fruit per acre, with a mean fruit number of 7,180 fruit per acre. 'Minerva' had the highest yield in this year's trial, followed by 'Crescent Moon,' 'RML 0410,' and 'SSX 1029.' The earliest fruit in this trial were harvested at 83 days. Quality ratings of each tested variety or advanced experimental line showed variability in soluble solids, shape, size, uniformity, flavor, netting, and degree of ridges on the fruit surface (Table 2). Selected comments noted during quality evaluation are mentioned here: 'Aphrodite,' 'ES594,' and '05H15' all had soluble solids at or above 11% (brix). The highest flavor ratings in this trial were

'SSX 1099' and 'RML 0408.' Most fruit were medium to large, with average uniformity. Heavy netting, a thick rind, and a small seed cavity are also desirable characteristics, and 'ES 293' and '05H015' had all of these characteristics.

Table 1. *Yield comparison of Eastern muskmelon cultivars in Southwestern Indiana, 2007.*

Cultivar	Seed Source	Days to Harvest	Yield Cwt./A	Yield Tons/A	Fruit No./A	Average Fruit Weight (lbs.)	% of Fruit Harvested Between:		
							7/9-7/13	7/14-7/29	7/30-8/3
Minerva	RG	86	529.8	26.5	6,908	7.7	11	55	34
Crescent Moon	SE	83	494.5	24.7	6,556	7.6	23	55	22
RML 0410	RG	85	486.4	24.3	7,480	6.5	20	49	31
SSX 1029	STS	84	484.4	24.2	5,632	8.6	18	59	23
SSX 1099	STS	84	481.9	24.1	9,504	5.1	8	66	26
ES 293	AC	91	478.8	23.9	4,884	9.9	1	55	44
Diva	HM	85	466.0	23.3	7,172	6.5	12	73	15
ES 594	AC	87	460.4	23.0	6,776	6.8	3	52	45
Aphrodite	RG	84	457.6	22.9	6,864	6.7	26	54	20
Jaipur	SM	87	444.0	22.2	7,788	5.7	9	71	20
Rockstar	SE	83	443.5	22.2	6,952	6.4	44	47	9
Athena	RG	83	437.4	21.9	8,316	5.2	31	43	26
RML 0408	RG	84	431.7	21.6	6,556	6.6	14	69	17
RML 0409	RG	83	425.7	21.3	7,524	5.6	25	55	20
05H015	SE	83	424.1	21.2	7,832	5.4	47	40	13
Strike	HL	84	417.5	20.9	8,140	5.2	42	37	21
Grand Mean		84.8	460.2	23.0	7,180	6.6	21.0	55.1	24.0
LSD (5%)		2.8	47.1	2.4	739	0.4	11.9	13.6	8.6
C.V. (%)		2.2	6.2	6.2	16	4.1	34.1	14.8	21.9

Table 2. *Quality comparison of Eastern muskmelon cultivars in southwestern Indiana, 2007.*

Cultivar	Seed Source	% SS[q]	Shape[r]	Size[s]	Uniformity[t]	Flavor[u]	Netting[v]	Ridges[w]	Rind[x]	Seed Cavity[y]	Pressure[z]
Minerva	RG	10.1	Ov	VL	2	1.9	3	3	2	M-L	4.0
Crescent Moon	SE	7.2	Ov	L	2	1.7	3	3	2	M	1.5
RML 0410	RG	9.0	R	M	2	1.3	3	1	1	M	1.0
SSX 1029	STS	6.5	R-Ob	L-VL	1	3.6	3	1	1	S	2.0
SSX 1099	STS	10.5	R	S	3	4.6	3	0.5	0.5	S	2.0
ES 293	AC	10.4	Ov	VL	2	3.0	3	1	2	S	4.0
Diva	HM	9.5	Ob	L	3	3.0	3	1	1	M	2.5
ES 594	AC	11.0	Ov	L	2	3.3	3	1	2	S	6.0
Aphrodite	RG	11.1	R	M	3	2.9	3	1	1	L	2.0
Jaipur	SM	9.0	R	S	2	2.9	3	2	2	L	3.5
Rockstar	SE	9.5	Ov	M	3	3.4	2	2	2	S	3.0
Athena	RG	9.0	Ob	S	2	3.9	2	1	1	S	2.5
RML 0408	RG	9.0	R	S	3	4.1	2	1	1	S	2.0
RML 0409	RG	10.5	R	S	3	2.9	2	1.5	1	S	3.0
05H015	SE	11.0	R	M	3	2.0	3	2	2	S	2.0
Strike	HL	8.0	Ob	S	3	2.1	3	1	1	S	2.5

[q]%SS = Percent Soluble Solids: the higher the value, the greater the amount of total sugar.

[r]Shape: Rd=round, Ov=oval, Ob=oblong.

[s]Size: S=small, M=medium, L=large, VL=very large.

[t]Uniformity (1 to 3): 1=lack all uniform/variable, 2=average, 3=very uniform.

[u]Flavor (1 to 5): 1=very poor, 3=acceptable, 5=great.

[v]Netting (1 to 3): 1=weak, 2=moderate, 3=heavy.

[w]Ridges (0 to 3): 0=absent, 1=light, 2=moderate, 3=heavy/large.

[x]Rind (1 to 3): 1=thin, 2=moderate, 3=thick.

[y]Seed cavity: S=small, M=medium, L=large, VL=very large.

[z]Pressure = Pressure test reading (in pounds per square inch).