

Eastern Muskmelon Trials for Southwestern Indiana, 2002

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Indiana is a leader in the nation for production of eastern muskmelon with Knox county ranking in the top 100 melon producing counties. The evaluation of newly released varieties and advanced experimental breeding lines is independent assessment of new melons 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 in size, have high uniformity in size and shape of melons. Traditionally, markets have demanded fruit with heavy netting and distinct ridges. Melons that can be stored and held easily for longer periods of time, and those that could be harvested at a slightly earlier slip-stage and still retain acceptable quality would also be desirable.

Experimental 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 15, 2002 and transplanted into the field on May 23, 2002. Plots consisted of single 55-foot long rows, covered with 4 ft. wide black plastic mulch. Rows were centered six feet apart, and between plant spacing within a row was 2.5 ft., allowing 22 plants per row. Each variety and experimental line was grown in accordance with the recommendations outlined in the Midwest Vegetable Production Guide for Commercial Growers (ID-56, 2001). Trickle irrigation lines placed beneath the plastic mulch provided water as needed. Fruits were harvested three times a week by hand from July 15, 2002 through August 8, 2002. Data was analyzed with the SAS Software package (SAS Corp., Cary, NC).

Results:

High Yield, Earliness, and Internal Quality Rating: The average yield was 21.7 tons/acre with a range of 17.4 to 27.7 tons/acre (Table 1). The mean fruit weight was 5.5 lbs/fruit with a range of 4.2 to 7.4 lbs/fruit. This translated to 5896 to 9548 fruit/acre with a mean fruit number of 6985 fruit/acre. PS208096 had the highest yield in this years trial followed by Vienna, Eclipse, Minerva, and PX12695. The earliest fruit in this trial was from RML 8793, EA 70, EA 60, and Athena at 86 days. Quality ratings of each tested variety or advanced experimental line showed variability in soluble solids, shape, size, uniformity, flavor, netting and the degree of ridges on the fruit surface (Table 2). Selected comments noted during quality evaluation are mentioned here: ACX 3908, RML 8793, EA 70, Odyssey, E 1009, and Saticoy all had soluble solids measured above 12% (brix). The highest flavor ratings in this trial were Eclipse, EA 60, Odyssey, E 1009, Athena, Saticoy, E 1007. Most fruit were medium sized with good uniformity. Heavy netting and a thick rind are also desirable characteristics and PS208096, Eclipse, Vienna, PX12695, and ACX 3908 exhibited both of these characteristics.

Table 1. Yield comparison of Eastern muskmelon cultivars in Southwestern Indiana, 2002.

Cultivar	Seed Source	Days to harvest	Yield Cwt.Lb/A	Yield ^z Tons/A	Fruit No./A	Avg fruit weight Lbs	% of fruit harvested between:		
							7-15 7-22	7-23 7-30	7-31 8-7
PS 208096	SM	87	554.0	27.7 a	6996	7.4	39.0	33.8	27.2
Vienna	SM	87	482.9	24.1 ab	7172	4.9	51.0	29.2	19.8
Eclipse	RU	88	461.6	23.1 bc	6468	6.1	53.4	26.2	20.4
Minerva	NV	90	459.8	23.0 bc	6116	5.7	16.9	61.9	21.2
PX 12695	SM	88	458.9	22.9 bc	7964	4.3	63.5	21.4	15.1
ACX 3908	AC	89	450.4	22.5 bcd	5896	6.1	39.7	38.7	21.6
RML 8793	NV	86	448.6	22.4 bcd	7040	5.6	66.5	10.6	22.9
EA 70	AC	86	448.4	22.4 bcd	6600	6.7	54.3	12.5	33.2
EA 60	AC	86	448.4	22.4 bcd	6600	6.7	54.3	12.5	33.2
Odyssey	SS	87	438.2	21.9 bcd	6556	6.0	46.3	31.2	22.5
E 1006	AT	88	407.2	20.4 bcde	9548	3.9	46.6	26.4	27.0
E 1009	AT	87	397.3	19.9 cde	6688	5.2	66.8	16.0	17.2
Athena	NV	86	387.7	19.4 cde	7832	5.2	56.2	11.6	32.2
Saticoy	RU	90	376.4	18.8 de	6248	4.8	19.3	57.0	23.7
E 1007	AT	91	370.9	18.6 de	7524	5.0	21.4	55.3	23.3
Rayyan	JS	91	348.7	17.4 e	6512	4.2	20.8	59.9	19.3
Grand mean		88	433.7	21.7	6985	5.5	44.7	31.5	23.7
LSD (5%)		3	81.4	4.1	956	2.4	18.2	15.7	14.9
C.V. (%)		2	11.3	11.3	8	26.8	24.4	30.0	37.6

Randomized complete block design: 3 replications.

z Yield wt. (tons) averages spanned by the same letter are not significantly different.

Table 2. Quality comparison of Eastern muskmelon cultivars in Southwestern Indiana, 2002.

Cultivar	Seed Source	%SS ^r	Shape ^s	Size ^t	Uniformity ^u	Flavor ^v	Netting ^w	Ridges ^x	Rind ^y	Seed ^z cavity
PS 208096	SM	10.4	Rd	L	3	2	3	2	3	M
Vienna	SM	11.0	Rd-Ov	L	2	3	3	1	3	L
Eclipse	RU	14.0	Rd-Ov	M-L	3	4	3	1	3	M
Minerva	NV	11.0	Ov	L	1	2	2	1	3	L
PX 12695	SM	11.0	Rd	M	3	3	3	1	3	S
ACX 3908	AC	12.0	Ov	L	3	3	3	1	3	M
RML 8793	NV	12.0	Ov	M	2	3	2	1	2	M
EA 70	AC	12.6	Ov	M	2	2	2	3	3	M
EA 60	AC	11.8	Ob	L	2	4	2	3	1	M
Odyssey	SS	12.4	Ob	M-L	1	4	2	2	3	M
E 1006	AT	10.6	Ov-Ob	S	2	2	2	2	3	M
E 1009	AT	12.4	Ov	M	3	4	2	3	2	S
Athena	NV	10.0	Rd	S	3	4	2	1	1	M
Saticoy	RU	13.4	Ov	M	3	4	2	2	3	S
E 1007	AT	9.2	Ov-Ob	M	1	4	2	2	2	S
Rayyan	JS	11.4	Ob	M	2	3	1	1	1	S

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

s Shape: Rd=round, Ov=oval, Ob=oblong.

t Size: S=small, M=medium, L=large, VL=very large.

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

v Flavor (1 to 5): 1=very poor, 3=acceptable, 5=great.

w Netting (1 to 3): 1=weak, 2=moderate, 3=heavy.

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

y Rind (1 to 3): 1=thin, 2=moderate, 3=thick.

z Seed cavity: S=small, M=medium, L=large, VL=very large.