

Eastern Muskmelon Trials for Southwestern Indiana, 2003

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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 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 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:

Twenty one 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 14, 2003 and transplanted into the field on May 12, 2003. 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, 2002). Trickle irrigation lines placed beneath the plastic mulch provided water as needed. Fruits were harvested three times a week by hand from July 18, 2003 through August 15, 2003. Data was analyzed with the SAS Software package (SAS Corp., Cary, NC).

Results:

High Yield, Earliness, and Internal Quality Rating: The average yield was 15.6 tons/acre with a range of 10.7 to 21.5 tons/acre (Table 1). The mean fruit weight was 4.3 lbs/fruit with a range of 2.8 to 5.9 lbs/fruit. This translated to 5104 to 8976 fruit/acre with a mean fruit number of 5920 fruit/acre. SVR 1416-1013 had the highest yield in this years trial followed by Superstar, Eclipse, HSR 4110 and Moneyloupe. The earliest fruit in this trial was from ACX 70, RML 0038 and RML 0039 at 96 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: HSR 4110, HSR 4121, Aphrodite, Minerva, RML 0039 all had soluble solids measured above 12% (brix). The highest flavor ratings in this trial were HSR 4110, Moneyloupe, ACX 60, Agriset 6001, ESC 0208, Aphrodite, and RML 0039. Most fruit were medium to large sized with good uniformity. Heavy netting and a thick rind are also desirable characteristics and only ESC 0210 and Athena exhibited both of these characteristics.

Table 1. Yield comparison of Eastern muskmelon cultivars in Southwestern Indiana, 2003.

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:		
							7-18 7-27	7-28 8-6	8-7 8-15
SVR 1416-1013	SM	100	430.1	21.5 a	7084	4.8	13.1	58.6	28.3
Superstar	HM	98	407.6	20.4 ab	6644	5.0	46.2	21.4	32.4
Eclipse	SM	99	397.6	19.9 ab	6204	5.2	10.9	52.1	37.0
HSR 4110	HL	98	369.6	18.5 abc	7656	4.6	32.8	24.5	42.7
Moneyloupe	AC	101	348.7	17.4 abcd	4576	5.9	7.9	68.3	23.8
ACX 60	AC	98	339.7	17.0 abcd	5236	5.2	39.2	20.9	39.9
Agrisets 6001	AG	99	335.3	16.8 abcde	5192	5.4	46.9	30.8	22.3
ACX 70	AC	96	326.3	16.3 abcde	6248	4.6	53.4	13.4	33.2
ESC 0208	DP	98	325.0	16.2 abcde	5104	4.6	35.4	39.7	24.9
HSR 4121	HL	98	315.9	15.8 abcde	8976	3.6	56.7	24.5	18.8
ESC 0207	DP	99	312.6	15.6 abcde	5148	5.3	19.6	52.3	28.1
Aphrodite	RG	99	310.5	15.6 abcde	5127	4.2	25.6	49.3	25.1
Minerva	RG	102	286.2	14.3 bcde	4576	4.0	6.8	75.6	17.6
HSR 4222	HL	98	275.1	13.8 cde	6548	3.7	39.9	18.5	41.6
ESC 0210	DP	100	274.5	13.7 cde	5544	3.5	13.6	48.0	38.4
RML 0037	RG	98	273.7	13.7 cde	6248	3.8	60.6	11.9	27.5
E1006	AC	100	253.0	12.7 cde	6380	3.4	13.9	67.6	18.5
RML 0039	RG	96	248.6	12.4 cde	5148	3.8	60.4	18.2	21.4
RML 0038	RG	96	244.6	12.3 de	5984	3.4	77.1	14.4	8.5
Athena	RG	98	243.3	12.2 de	5192	4.2	39.1	37.8	23.1
ESC 0209	DP	103	214.1	10.7 e	5500	2.8	4.9	67.8	27.3
Grand mean		98	311.0	15.6	5920	4.3	33.5	38.8	27.6
LSD (5%)		4	121.7	6.1	1947	1.7	16.2	17.0	13.2
C.V. (%)		3	23.7	23.7	20	23.7	29.4	26.6	29.1

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, 2003.

Cultivar	Seed Source	%SS ^c	Shape ^s	Size ^t	Uniformity ^u	Flavor ^v	Netting ^w	Ridges ^x	Rind ^y	Seed ^z
										cavity
SVR 1416-1013	SM	11.0	Rd	L	2	2	3	1	1	S
Superstar	HM	11.4	Rd	M	3	3	2	2	2	M
Eclipse	SM	8.6	Ov	L	2	2	2	2	3	M
HSR 4110	HL	12.0	Rd	M	3	4	3	1	1	S
Moneyloupe	AC	11.6	Ov	S	3	4	2	1	2	M
ACX 60	AC	11.4	Rd	M	3	4	2	1	1	M
Agrisets 6001	AG	11.2	Ov	M	2	4	2	1	2	M
ACX 70	AC	10.0	Rd	S-M	3	3	3	0	2	S
ESC 0208	DP	9.0	Rd	S	3	4	2	1	1	S
HSR 4121	HL	12.0	Ov	S-M	2	2	3	0	2	M
ESC 0207	DP	11.4	Ob	L	3	3	2	1	1	S
Aphrodite	RG	12.0	Rd	S	2	4	2	1	2	M
Minerva	RG	12.0	Ob	L	2	3	2	3	1	S
HSR 4222	HL	11.0	Rd	S	3	3	3	2	2	S
ESC 0210	DP	9.4	Ov	S-M	3	3	3	3	2	S
RML 0037	RG	10.4	Ob	L	2	2	3	1	1	S
E1006	AC	10.0	Ob	L	1	2	2	3	2	S
RML 0039	RG	12.0	Rd	L	1	4	2	3	2	S
RML 0038	RG	9.0	Ov	M	3	3	2	1	2	S
Athena	RG	9.2	Rd	L	2	2	3	3	3	M
ESC 0209	DP	8.0	Rd	M-L	3	2	3	1	3	M

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.