

Eastern Muskmelon Trials for Southwestern Indiana, 2001

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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:

Ten 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, 2001 and transplanted into the field on May 14, 2001. 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 11, 2001 through August 13, 2001. Data was analyzed with the SAS Software package (SAS Corp., Cary, NC).

Results:

High Yield, Earliness, and Internal Quality Rating: The average yield was 24.0 tons/acre with a range of 21.3 to 26.7 tons/acre (Table 1). The mean fruit weight was 6.2 lbs/fruit with a range of 4.8 to 7.9 lbs/fruit. This translated to 5676 to 9768 fruit/acre with a mean fruit number of 7964 fruit/acre. Odyssey had the highest yield in this years trial followed by HMX 9598, EA 70, EA 2120 and EA 2140. The earliest fruit in this trial was from EA 2120 at 78 days followed by HMX 8593, EA 70, and EA 2140. 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: Odyssey, HMX 9598, EA 2120, EA 2140 and EA 60 all had soluble solids measured above 11% (brix). The highest flavor ratings in this trial were Odyssey, HMX 9598, and HMX 9597. Most fruit were medium sized with good uniformity. Heavy netting and a thick rind are also desirable characteristics and HMX 9598 exhibited both of these characteristics. EA 2120 is a western type which was rated pleasing to the eye by evaluators.

Table 1. Yield comparison of Eastern muskmelon cultivars in Southwestern Indiana, 2001.

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:		
							7-03 7-17	7-18 7-31	8-01 8-13
Odyssey	SS	83	534.8	26.7 a	7656	7.0	26.5	41.1	32.4
HMX 9598	HM	85	517.8	25.9 ab	9064	5.7	12.1	56.1	31.8
EA 70	AC	81	501.6	25.1 ab	9152	5.5	35.8	36.7	27.5
EA 2120	AC	78	501.2	25.1 ab	6380	7.9	44.2	23.5	32.4
EA 2140	AC	81	495.2	24.8 abc	9460	5.2	21.2	60.3	18.5
EA 60	AC	82	473.7	23.7 abcd	6908	6.9	25.9	50.1	24.0
HMX 8593	HM	80	463.1	23.2 bcd	9768	4.8	27.8	34.9	37.3
HMX 9597	HM	89	463.1	23.2 bcd	8668	5.4	5.7	70.9	23.3
ACX 3908	AC	83	429.0	21.4 cd	5676	7.5	14.3	60.9	24.8
ACX 4757	AC	82	425.3	21.3 d	6908	6.2	33.6	47.8	18.6
Grand mean		82	4805.5	24.0	7964	6.2	24.7	48.2	27.1
LSD (5%)		4	68.6	3.4	1452	0.8	11.0	13.4	13.0
C.V. (%)		3	8.3	8.3	11	7.5	26.0	16.2	27.9

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, 2001.

Cultivar	Seed Source	%SS ^f	Shape ^s	Size ^t	Uniformity ^u	Flavor ^v	Netting ^w	Ridges ^x	Rind ^y	Seed ^z cavity
Odyssey	SS	11.6	Rd	M	2	4	2	1-2	3	M
HMX 9598	HM	11.4	Ob	M	3	4	3	1	3	M-L
EA 70	AC	10.2	Rd-Ov	M	2	3	2	2	2	S
EA 2120	AC	11.2	Ob	L	3	3	3	3	1	S-M
EA 2140	AC	11.4	Rd	S	3	3	2	2	3	M
EA 60	AC	11.4	Ob	L	2	1	2	3	1	M
HMX 8593	HM	7.4	Rd	S	3	3	2	1	1	M
HMX 9597	MH	9.8	Rd	S	3	4	2	1	3	M
ACX 3908	AC	10.0	Ov-Ob	M	3	3	3	0-1	1	S
ACX 4757	AC	10.6	Ob	M	3	3	2-3	1	2	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.