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Muskmelon Cultivar Trial

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Abstract

The 2009 melon trial evaluated eleven muskmelon and three specialty cultivars to determine their relative maturity, yield, and fruit characteristics when grown under Iowa conditions. To better evaluate the cultivars, they were trialed at two locations providing different soil types and growing environments.

Keywords

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Introduction

The 2009 melon trial evaluated eleven muskmelon and three specialty cultivars to determine their relative maturity, yield, and fruit characteristics when grown under Iowa conditions. To better evaluate the cultivars, they were trialed at two locations providing different soil types and growing environments.

Materials and Methods

Planting and plot design. Seed was planted in the greenhouse on April 21 in 72 cell trays, one seed/cell. At four weeks, the plants were transplanted to the field on May 22. Trial design was a randomized complete block with two replications. A plot consisted of eight plants spaced 28 in. apart in rows seven ft apart. The trial was planted twice, in Field I and Field S-3. The soil type in Field I was a light-colored coarse sand and melons were grown on raised beds covered with black plastic mulch and fertigated with drip tape. Field S-3 provided a dark-colored, fine textured, sandy loam soil with 3.5% organic matter and the melons were grown in a conventional bare ground cultural system with overhead irrigation.

Fertility and irrigation. Water was applied as needed by irrigation to supplement rainfall. Fertility guidelines described in Midwest Vegetable Production Guide for Commercial Growers (FG-600) were followed.

Pest control. Strategy, Sandea, and Poast herbicides were used to control weeds. Cucumber beetles were controlled with Furadan 4F at planting and foliar applications of Mustang Max or Sevin XLR during the growing season. Wet humid weather

necessitated more fungicide spraying than normal to control leaf blights, including downy mildew. Bravo, Dithane, Kocide 2000, Quadris, and Ranman fungicides were used in various combinations and rotated.

Results and Discussion

In spite of a growing season that was cooler and wetter than normal, yields were generally decent and fruit quality, as judged by flavor and percent soluble solids, was good. The two trial locations provided different growing environments. Field S-3 with its dark heavy soil was constantly wet and much weedier. Field I (black plastic mulch and trickle irrigation) produced more vigorous vine growth and earlier harvesting by at least a week. Yields were higher too. The trial in Field I averaged 2.7 fruit/plant weighing 6.1 lb, and the trial in Field S-3 averaged 2.3 fruit/plant weighing 5.5 lb (Table 1). However, relative cultivar performance was similar at both locations so data were combined for Tables 2, 3, and 4.

Marketable yield was not different among the top performers. Aphrodite, Athena, and Eclipse were the standards. Trial cultivars that performed well at both locations and compared favorably with the standards included: Atlantis, Ariel, Strike, Home Run, and Grand Slam. These cultivars were similar in that they produced high marketable yields with few culls. Although there were differences in fruit size (Table 3), fruit shape was always round to oval with very little ribbing. And the fruit were firm, providing leeway in harvest timing and good shelf life but, most importantly, still having sweetness and flavor. Crescent Moon and Halona, on the other hand, produced ribbed fruit and soft juicy flesh that is desired by many “home grown” markets but both cultivars became overripe quickly and developed radial cracks

around the stem scar. The specialty melons Courier, Galia Max, and Sensation produced some attractive, delicious fruit. Vine growth was vigorous but they were somewhat particular about growing conditions—any

fluctuation in soil moisture caused fruit cracking.

Photographs of trial cultivars are posted on our website at: <http://mirdf.ag.iastate.edu/>.

Table 1. Melon trial averages for Field I and Field S-3, Muscatine Island Research Farm.

Location	DTH ^a	Avg frt wt (lb)	Yield lb/plant	Number frt/plant	Number frt/acre	Yield lb/acre
Field I (coarse sand, trickle irrigation, black mulch)	78	6.1	15.9	2.7	7,216	43,116
Field S-3 (sandy loam, bare ground, overhead irrigation)	86	5.5	12.4	2.3	6,224	33,600

^aDays to harvest from transplanting on May 22.

Table 2. Seed source, days to harvest, and fruit yield of cultivars, Field I and S-3 combined.

Cultivar	Seed source ^a	Days to harvest ^b	Number fruit/plant ^c	Yield lb/plant ^c	Number fruit/acre	Yield lb/acre
Goddess	ST	63	2.8	15.1	7,517	40,620
Home Run	HL	69	2.9	16.8	7,817	44,093
Grand Slam	HL	73	2.6	14.8	7,066	40,199
Aphrodite	RG	73	2.2	14.5	5,863	38,966
Strike	HL	73	2.0	13.0	5,412	35,419
Crescent Moon	RU	76	2.8	19.6	7,592	52,872
Halona	HL	76	3.4	15.0	9,321	41,071
Ariel	RG	76	2.1	14.9	5,683	39,447
Atlantis	RI	76	2.6	14.6	7,066	39,372
Athena	RG	76	2.4	14.4	6,464	38,936
Eclipse	SM	79	2.3	13.3	6,164	36,035
Galia Max	HL	79	2.3	14.7	6,314	40,455
Sensation	HL	79	2.9	14.5	7,817	39,027
Courier	HL	79	2.3	12.4	6,164	32,698
Average			2.5	14.8	6,876	39,944

^aSeed source: HL = Hollar Seeds, RG = Rogers Brand/Syngenta, RI = Rispens Seeds, RU = Rupp Seeds, SM = Seminis, Inc, and ST = Stokes Seeds.

^bDays to harvest from transplanting on May 22.

^cAll well-developed mature fruit, including fruit that were cracked but not rotten (see comments Table 4).

Table 3. Average fruit weights and fruit distribution by weight categories.^a

Cultivar	Avg fruit wt (lb)	% small 3–5 lb	% medium 5–7 lb	% large 7–9 lb	% X-large > 9 lb
Goddess	5.4	32	60	6	2
Home Run	5.8	29	63	6	2
Grand Slam	5.7	29	53	18	0
Aphrodite	6.6	15	35	42	8
Strike	6.5	8	54	38	0
Crescent Moon	7.0	0	51	34	15
Halona	4.4	76	22	2	0
Ariel	7.1	9	29	43	19
Atlantis	5.6	37	49	6	8
Athena	6.0	25	38	37	0
Eclipse	5.8	11	62	27	0
Galia Max	6.4	14	46	26	14
Sensation	5.0	37	60	3	0
Courier	5.4	22	65	13	0

^aPercent determined by number of fruit in each weight category.

Table 4. Cultivar percent soluble solid readings of fruit and harvest observations and comments.

Cultivar	% soluble solids ^a	Comments
Goddess	8.7	Earliest cultivar in trial by almost a week. Fruit became soft and overripe quickly. Sugar content low in comparison to other cultivars.
Home Run	10.9	Smooth oval shape, small tight seed cavity.
Grand Slam	10.3	Smooth oval shape, small tight seed cavity.
Aphrodite	10.2	Standard recommended cultivar. Early maturity, large fruit size. Previous research has shown that higher plant populations than used in this trial can increase yield and reduce number of extra large fruit.
Strike	11.0	Smooth oval shape, very firm fruit with small tight seed cavity.
Crescent Moon	9.1	Large ribbed fruit with coarse netting. Soft flesh at maturity with variable sugar content. Some radial cracking at stem scar.
Halona	11.2	Small to medium-sized ribbed fruit with sweet, soft flesh. Most fruit developed cracks radiating out from stem scar, needs timely harvest.
Ariel	11.0	New, appearance and performance similar to Aphrodite in this trial.
Atlantis	11.0	Good uniformity, oval shaped fruit with well-developed netting. Firm flesh with good flavor, decent shelf life and shipping ability. Medium to small-sized fruit may not be desirable for some markets.
Athena	10.7	Standard recommended cultivar.
Eclipse	11.5	Standard recommended cultivar. Midseason maturity, high yield and quality. Can have concentrated fruit set.
Galia Max	10.1	Large fruited galia type with green flesh. Developed large cracks/holes in rind causing fruit rot in both fields.
Sensation	12.4	Attractive, unique specialty melon with flavorful white flesh. Sensitive to soil moisture fluctuations. Severe rind cracking on coarse sand, no cracking on heavy soil with uniform moisture.
Courier	14.0	Galia type, very sweet green flesh. Rind cracking a problem on coarse sand - cutting fruit from vine before full slip helped.

^aPercent soluble solids is a measure of sweetness. U.S. No. 1 grade must be at least 9%.