

Performance of Muskmelon Cultivars, Plateau Experiment Station, 2000

Charles A. Mullins

Interpretative Summary

'Cruiser' produced a large number of relatively small fruit per acre. 'Minerva' produced a moderate number of large melons per acre. 'HMX 7605', 'Minerva', and 'Starfire' are among the most promising cultivars evaluated in the trial.

Introduction

Muskmelons are grown in home gardens and in limited commercial acreage in Tennessee. Muskmelon is a profitable vegetable crop in many years. However, in some years, fruit quality is poor and shipping quality is poor. Poor fruit quality is usually related to periods of heavy rainfall and cool weather. Consistently good flavor among melons seems to be a problem in Tennessee as well as in most other production areas. Weed control can be a problem as herbicides do not consistently control broadleaf weeds. Black plastic mulch and drip irrigation have been desirable production techniques for muskmelon. 'Athena' has been the major muskmelon cultivar in the Eastern United States for several years. Other cultivars are commercially available, but are grown in very limited acreage. Many of the new cultivars have mildew tolerance. An experiment was conducted at the Plateau Experiment Station at Crossville in 2000 to evaluate performance of 14 muskmelon cultivars.

Materials and Methods

The site was prepared for planting using conventional tillage in early May. Fertilizer was broadcast at 400 lb/A of 15-15-15 before final disking on May 5. Four foot wide black plastic mulch was laid, and plots were direct seeded on May 8. Plot size was one row, 20 ft long and contained 20 plants with 10 hills of 2 plants per hill spaced 2 ft apart in the row. Rows were spaced six feet apart. Experimental plot design was a randomized complete block with four replications. Bensulide (Prefar 4E) at 6 lb ai/A and naptalam (Alanap) at 4 lb ai/A were applied on May 5 for weed control. Carbaryl (Sevin XLR) at 1 lb ai/A was applied for insect control on May 17 and June 20. Disease control was primarily azoxystrobin (Quadris) at 0.1 lb ai/A alternated with chlorothalonil (Bravo) at 2.0 lb ai/A plus myclobutanil (Nova) at 2.0 oz ai/A and applications were made on a 10 to 14 day frequency.

Seven harvests were made between Aug. 9 and Sept 2. Yields were recorded by number and weight of marketable and cull melons. Selected average sized melons were measured for length, diameter, core length, core diameter, and flesh thickness. Melons were rated for netting, sutures, flavor, and flesh color. Soluble solids were recorded with a hand held refractometer. All data were analyzed by Analysis of variance

procedures. Means were separated by Duncan’s multiple range tests at the 0.05 level of probability.

Results and Discussion

‘Cruiser’ was one of the most productive cultivars while ‘HMX 5594’ was one of the least productive cultivars (Table 1). Most cultivars produced a high number of melons per acre. ‘Minerva’ (RML 6969) fruit were among the largest of the cultivars, and average weight was 6.2 lb per melon. Cultivars that produced fruit with an average of less than 3 lb were ‘Cruiser’, ‘HMX 8594’, and SMX 7204. Desirable weight of muskmelons is at least 4 lb and melons in the 6 to 8 lb range are desirable for many markets. ‘Athena’, ‘Vienna’ and ‘Minerva’ were among cultivars with the longest fruit. ‘Vienna’ fruit had a larger diameter than all cultivars except ‘Minerva’. ‘Minerva’ had a larger cavity in length and width than most other cultivars. This is probably related to the large fruit size of ‘Minerva’. Fruit of ‘HMX 5581’, ‘HMX 7605’, and ‘Minerva’ were among cultivars with the largest flesh thickness.

All cultivars were heavily netted which is desirable for most markets (Table 2). Sutures are acceptable in many local markets, but are less desirable for the shipping market. ‘Athena’ has moderate to light sutures. None of the cultivars had heavy sutures, but ‘HMX 0586’, ‘HMX 5581’, ‘HMX 7608’, ‘Minerva’, and ‘Odyssey’ had more sutures than most other cultivars. ‘HMX 7608’ was among cultivars with the highest flavor rating of the fruit. ‘Starfire’ and ‘Minerva’ were among cultivars with the lowest flavor rating. Fruit of ‘Vienna’ had the darkest orange flesh color. ‘HMX 8594’ fruit had the highest soluble solids levels.

Table 1. Yield and fruit measurements of muskmelon cultivars evaluated at The University of Tennessee Plateau Experiment Station at Crossville, 2000.

Cultivar	Marketable yield no./A	Pounds per melon	Melon length (in.)	Melon diam (in.)	Cavity length (in.)	Cavity diameter (in.)	Flesh thick (in.)
Acapitan	11979 abc ^z	3.1 fg	6.1 d	5.4 de	3.4 ef	2.1 de	1.75
Athena	13794 abc	4.0 cde	7.5 a	6.2 bc	4.7 abc	2.4 bcd	1.83
Cruiser	14702 a	3.1 fg	6.0 d	5.4 e	3.3 f	2.0 e	1.81
HMX 0586	13358 abc	4.2 cd	6.2 d	6.0 bcd	3.7 def	2.6 b	1.75

HMX 5581	9438 bcd	4.6 bcd	6.6 bcd	6.0 bcd	3.8 def	2.2 cde	2.00 a
HMX 5594	7260 d	5.3 b	7.4 ab	5.7 cde	4.3 bcd	2.2 cde	1.83 ab
HMX 7605	13068 abc	4.4 cd	7.2 abc	5.7 cde	3.9 cdef	1.9 e	1.94 a
HMX 7608	13358 abc	3.8 def	5.9 d	5.9 bcde	3.6 def	2.4 bcd	1.88 ab
HMX 8594	12415 abc	2.7 g	5.8 d	5.4 e	3.4 f	2.0 e	1.62 b
Minerva	9075 bcd	6.2 a	7.9 a	6.5 ab	5.2 a	2.9 a	2.00 a
Starfire	14084 ab	4.8 bc	6.4 cd	6.1 bc	4.0 cdef	2.5 bc	1.88 ab
Odyssey	11798 abc	4.3 cd	5.9 d	6.0 bcd	4.2 bcde	2.5 bc	1.83 ab
SMX 7204	12995 abc	3.3 efg	6.4 cd	5.4 e	3.8 def	2.1 de	1.75 ab
Vienna	9075 bcd	5.4 b	7.6 a	6.9 a	4.9 ab	2.9 a	1.88 ab

^z Means within a column followed by the same letter are not significantly different at the 0.05 level of probability, Duncan's multiple range tests.

Table 2. Fruit quality ratings and seed source of muskmelon cultivars evaluated at The University of Tennessee Plateau Experiment Station at Crossville, 2000.

Cultivar	Netting rating ^x	Suture rating ^x	Flavor rating ^x	Flesh color rating ^x	Soluble Solids ^y	Seed source
Acapatian	10.0 a ^z	1.0 d	6.5 abc	8.5 abc	9.5 ab	Abbott + Col
Athena	8.0 c	2.8 c	6.8 abc	8.8 abc	10.2 ab	Novartis
Cruiser	10.0 a	1.0 d	6.8 abc	8.8 abc	8.8 bc	Harris Mora
HMX 0586	8.0 c	4.0 abc	6.2 abc	8.2 bc	7.5 c	Harris Mora

HMX 5581	9.5 ab	5.2 a	6.5 abc	9.2 ab	9.8 ab	Harris Moran
HMX 5594	10.0 a	1.5 d	6.8 abc	8.2 bc	9.0 bc	Harris Moran
HMX 7605	9.8 a	1.0 d	5.8 bc	8.5 abc	9.5 ab	Harris Moran
HMX 7608	8.2 c	4.0 abc	8.0 a	9.0 abc	9.5 ab	Harris Moran
HMX 8594	9.8 a	1.0 d	7.2 abc	9.0 abc	11.2 a	Harris Moran
Minerva	8.8 abc	4.8 ab	5.8 bc	9.0 abc	10.5 ab	Novartis
Starfire	8.8 abc	3.8 bc	5.5 c	7.8 c	9.2 b	Harris Moran
Odyssey	8.0 c	4.0 abc	6.2 abc	9.5 ab	9.0 bc	Sun
SMX 7204	10.0 a	1.0 d	6.5 abc	6.5 d	10.0 ab	Sun
Vienna	8.5 bc	3.5 bc	7.5 ab	9.8 a	10.0 ab	Asgrow

^z Means within a column followed by the same letter are not significantly different at the 0.05 level of probability, Duncan's multiple range tests.

^x Ratings on a scale of 1 to 10; 10= heaviest netting, most sutures, best flavor, and darkest flesh color.

^y Soluble solids by hand held refractrometer.

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This research represents one season's data and does not constitute recommendations. After sufficient data is collected over the appropriate number of seasons, final recommendations will be made through research and extension publications.