

Performance of Muskmelon Cultivars, Plateau Experiment Station, 2001

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Interpretative Summary

'HMX7608' produced a large number of relatively small fruit per acre. 'Vienna' produced a moderate number of large melons per acre. 'Athena', 'Eclipse', and 'Odyssey' 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 2001 to evaluate performance of 11 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 15. Four foot wide black plastic mulch was laid, and plots were direct seeded on May 18. Plot size was one row. Rows were spaced six feet apart. Experimental plot design was a randomized complete block with four replications. Ethalfuralin (Curbit 3EC) at 1.5 lb ai/A and Clomazone (Command 4EC) at 0.375 lb ai/A were applied on May 18 for weed control. Carbaryl (Sevin XLR) at 1 lb ai/A was applied for insect control on June 12 and July 10. Disease control was chlorothalonil (Bravo) at 2.0 lb ai/A plus myclobutanil (Nova) at 2.0 oz ai/A used on a 7 to 14 day schedule.

Seven harvests were made between Aug. 15 and Sept. 1. 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

'HMX7608' was one of the most productive cultivars while 'EXO4370099' was one of the least productive cultivars (Table 1). Most cultivars produced a high number of melons per acre. 'Vienna' fruit were among the largest of the cultivars, and average weight was 5.58 lb per melon. None of the cultivars produced fruit with an average of less than 3 lb. Desirable weight of muskmelons is at least 4 lb and melons in the 6 to 8 lb range are desirable for many markets. 'HMX7603', 'Atheena', 'Vienna' and 'Minerva' were among cultivars with the longest fruit. 'Eclipse' fruit had a larger diameter than all cultivars. 'Eclipse' had a larger cavity in length and width than most other cultivars. This is probably related to the large fruit size of 'Eclipse'. Fruit of 'Eclipse', 'HMX5581', and 'EXO4370099' were among cultivars with the largest flesh thickness.

All cultivars were not heavily netted. Sutures are acceptable in many local markets, but are less desirable for the shipping market. 'Minerva', 'HMX5581', and 'EX04370099' has moderate to light sutures. 'HMX7603', and 'PXC221' had more sutures than most other cultivars. 'EX4204099' was the cultivar with the highest flavor rating of the fruit. 'EX04370099' and 'Vienna' were among cultivars with the lowest flavor rating. Fruit of 'PXC231' had the darkest orange flesh color. 'HMX7603' 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, 2001

Cultivar	Marketable yield no/A	Pounds per melon	Melon length (in.)	Melon diam. (In.)	Cavity length (in.)	Cavity diameter (in.)	Flesh thickness (in.)
Athena	9438 a ^z	4.14 bc	7.4 b	6.3 cd	4.7 a	2.5 de	1.6 cd
Eclipse	9347 a	5.37 ab	7.4 b	7.0 a	5.2 a	3.3 a	1.9 b
HMX5581	7351 ab	4.36 abc	7.4 b	6.5 bc	5.3 a	2.6 cd	2.0 a
HMX7603	8621 a	4.11 bc	7.8 a	6.7 ab	5.0 a	2.6 de	1.8 b
HMX7608	10164 a	3.68 c	6.3 d	6.6 b	4.3 a	3.3 a	1.4 f
Minerva	6534 abc	5.15 ab	7.4 b	6.3 cd	4.9 a	3.0 b	1.5 de

Odyssey	9075 a	5.05 ab	6.8 c	6.3 cd	4.8 a	2.8 bc	1.6 cd
Vienna	6897 abc	5.58 a	7.4 b	6.8 ab	5.1 a	2.9 b	1.6 c
PXC221	9166 a	3.13 c	7.4 b	6.0 de	4.8 a	2.9 b	1.4 f
EX4204099	3721 bc	3.66 c	6.6 cd	6.1 de	4.5 a	2.4 de	1.8 b
EX04370099	2813 c	3.64 c	6.5 cd	5.9 e	4.0 a	2.4 e	1.9 b

^zMeans 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, 2001

Cultivar	Netting rating ^x	Suture rating ^x	Flavor rating ^x	Flesh color rating ^x	Soluble Solids ^y	Seed Source
Athena	3.25 cd ^z	7.0 ef	4.75 cd	3.00 d	9.0 abc	Rogers
Eclipse	4.50 bc	8.0 cd	4.50 d	2.25 e	9.3 ab	Seminis
HMX5581	2.50 ef	4.5 h	4.75 cd	3.50 cd	8.3 cde	Harris Moran
HMX7603	2.83 ef	9.8 a	5.46 bcd	4.92 a	9.8 a	Harris Moran
HMX7608	4.00 cd	6.5 f	6.50 b	5.25 a	7.0 f	Harris Moran
Minerva	4.25 bc	4.3 h	6.00 bc	5.00 a	8.0 de	Rogers
Odyssey	4.00 cd	5.5 g	5.50 bcd	4.13 b	8.8 bcd	Sunseed
Vienna	5.00 aab	7.5 de	4.50 d	4.13 b	8.8 bcd	Asgrow
PXC221	5.00 ab	9.3 ab	5.50 bcd	5.38 a	7.5 ef	Siegers

EX4204099	5.75 a	8.5 bc	8.75 a	5.00 a	9.3 ab
EX04370099	2.25 f	4.3 h	3.25 e	4.00 bc	9.8 ab

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

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

^ySoluble solids by hand held refractometer.

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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.