

Performance of Muskmelon Cultivars, Plateau Experiment Station, 2002

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Interpretative Summary

All the cultivar tested produced lower than expected numbers of melons. 'Odyssey', 'Vienna', and 'PXC 221' produced a moderate number of large melons per acre, and 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 2002 to evaluate performance of 9 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 with trickle tape was laid, and plots were direct seeded on May 31. Plot size was one row, 20 ft long and contained 20 plants with 10 hills of 2 plants/hill spaced 2 ft apart in the row. Rows were spaced six feet apart. Plots were irrigated weekly for 2 hours. Experimental plot design was a randomized complete block with four replications. Ethalfluralin (Curbit 3EC) at 1.5 lb ai/A and Clomazone (Command 4EC) at 0.375 lb ai/A were applied on May 31 for weed control. Carbaryl (Sevin XLR) at 1 lb ai/A was applied for insect control and chlorothalonil (Bravo) at 2.0 lb ai/A plus myclobutanil (Nova) at 2.0 oz ai/A for disease control on a 7 to 14 day schedule.

Four harvests were made between Aug. 05 and Aug. 23. 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 refractrometer. Five melons from each variety harvested at the brown slip stage were placed on a shelf at ca 50EF, and were checked daily for soft spots, and

rot. 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

Yields for all the varieties were far less than expected. This was probably due to the extremely hot and dry weather conditions present. 'HMX 95988' was one of the most productive cultivars while 'Minerva' was the least productive cultivars (Table 1). 'Vienna' fruit were among the largest of the cultivars, and average weight was 6.98 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. 'Vienna', 'Odyssey', and 'PXC 221' were among cultivars with the longest fruit. Fruit of 'Vienna' and 'Odyssey' were among cultivars with a larger diameter. 'PXC 221' and 'Vienna' were among cultivars that had a longer cavity length other cultivars while 'Vienna', 'Minerva', and 'Odyssey' had bigger cavity diameters than other cultivars. Fruit of 'Odyssey', 'Vienna', and 'PXC 221' had greater flesh thickness than all other cultivars.

Most of the cultivars were fairly heavily netted (Table 2). Sutures are acceptable in many local markets, but are less desirable for the shipping market. 'Starfire' and 'HMX 9598' has moderate to light sutures, while 'Odyssey', and 'HMX 0586' had more sutures than most other cultivars. 'Odyssey' and 'Vienna' were among cultivars with the highest flavor rating of the fruit. 'Starfire' and 'HMX 9598' were among cultivars with the lowest flavor rating. Fruit of 'Odyssey' and 'Vienna' were among those cultivars that had the darkest orange flesh color. 'Odyssey' and 'Vienna' fruit had the highest soluble solids levels. 'Athena' had longer shelf life than all other varieties except 'Vienna' and 'PXC 221'.

Table 1. Yield and fruit measurements of muskmelon cultivars evaluated at The University of Tennessee Plateau Experiment Station at Crossville, 2002.

Cultivar	Marketable yield no/A	Pounds per melon	Melon length (in.)	Melon diam (in.)	Cavity length (in.)	Cavity diameter (in.)	Flesh thickness (in.)
Athena	2722 ab ^z	4.82 b	6.25 bc	5.69 c	3.69 ab	2.75 bc	1.4
Eclipse	1860 ab	5.24 b	6.53 abc	6.52 abc	3.91 ab	3.06 bc	1.4
HMX	3176 a	4.75 b	7.38	6.91 abc	4.13 ab	3.00 bc	1.4

0586			abc				
HMX 9598	3494 a	5.24 b	7.75 ab	5.97 bc	4.75 a	2.75 bc	1.31 c
Minerva	1225 c	6.01 b	6.25 bc	6.31 abc	4.19 ab	3.44 ab	1.50 abc
Odyssey	2994 ab	6.28 ab	8.25 ab	8.00 ab	5.00 a	3.63 ab	2.00 a
Vienna	2405 ab	6.98 a	8.75 a	8.29 a	4.31 ab	4.13 a	2.00 a
PXC 221	2087 ab	6.09 ab	7.88 ab	6.88 abc	4.69 a	2.81 bc	1.94 ab
Starfire	2722 ab	5.19 b	5.25 c	5.38 c	3.00 b	2.31 c	1.38 c

^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, 2002.

Cultivar	Netting rating ^x	Suture rating ^x	Flavor rating ^x	Flesh color rating ^x	Soluble Solids ^y	Shelf Life (days)	Seed source
Athena	8.13 a ^z	6.50 abc	5.75 c	6.87 ab	9.00 bc	7.00 a	Seed source
Eclipse	7.75 ab	6.50 abc	6.25 bc	7.38 ab	6.13 de	4.88 b	Seed source
HMX 0586	7.50 ab	8.25 ab	7.00 abc	6.38 bc	8.06 cde	3.00 c	Hammond
HMX 9598	7.25 ab	5.25 c	5.63 c	7.13 ab	8.56 bcd	2.63 c	Hammond
Minerva	8.75 a	8.25 ab	6.25 bc	7.25 ab	8.00 cde	4.88 b	Rockwell
Odyssey	9.00 a	8.75 a	8.25 a	9.00 a	12.25 a	2.00 c	Superior
Vienna	9.00 a	6.75 abc	8.75 a	8.25 ab	10.88 ab	6.00 ab	Series

PXC 221	9.00 a	6.25 bc	6.75 abc	6.00 bc	8.25 bcd	6.25 ab	Seedway
Starfire	6.75 b	5.75 c	5.25 c	4.50 c	5.38 e	2.63 c	Harris Moran

^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 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.