Performance of Muskmelon Cultivars, Middle Tennessee Experiment Station, 2000

Charles A. Mullins, Dennis Onks, and Roy Thompson

Interpretative Summary

The muskmelon cultivars generally performed well in the trial. ‘Athena’ produced high in numbers of fruit per acre. ‘HMX 5581' produced one of the larger fruit average weights. Cultivars usually produced fewer fruit when fruit size was larger. Fruit of ‘Cruiser’ had higher soluble solids than fruit of ‘StarFire’ and ‘SMX 7204'. Most cultivars had light sutures and heavy netting.

Introduction

Muskmelons are grown in limited commercial acreage in Middle Tennessee. This area with a somewhat dry and warm summer growing season is well adapted to muskmelon production. However in some years, fruit shipping quality is poor. Producing muskmelons with consistent quality is a difficult task in many areas, and especially in the humid eastern United States. Inconsistent flavor among muskmelons appears to be a universal probem.

‘Athena’ has been the predominate muskmelon cultivar in the Eastern United States for several years. The shipping market prefers a cultivar that has less suturing than ‘Athena’, but the excellent quality and flavor of ‘Athena’ fruit is an excellent characteristic of this cultivar. Melons with heavy netting and of 4 lb or larger are usually preferred for the shipping market. Local markets often prefer larger melons. Several cultivars other than ‘Athena’ are commercially available, but are grown in a very limited acreage in Tennessee. Many of the new cultivars have mildew tolerance. An experiment was conducted at the Middle Tennessee Experiment Station at Spring Hill 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 750 lb/A of 15-15-15 before final disking on May 18. Naptalam (Alanap) at 4.0 lb ai/A and bensulide (Prefar) at 6.0 lb ai/A were applied and soil incorporated for weed control on May 18.. Plot size was one row, 20 ft long and each row contained 20 plants or 10 hills of 2 plants/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. Sethoxydim (Poast) was applied for post emergence grass control on June 30. Esfenvalerate (Asana) at 0.05 lb ai/A was applied eight times for insect control. Fungicides for disease control included azoxystrobin (Quadris) at 0.1 lb ai/A alternated with chlorothalonil (Bravo) at 2.0 lb ai/A applied with each insecticide application.

Seven harvests were made between Sept. 2 and Sept. 15. Yields were recorded by number and weight of marketable melons. Selected average size melons were measured for length, diameter, and flesh thickness. Melons were rated for netting, sutures, and appearance. Soluble solids were recorded with a hand held refractrometer. 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

'Athena' was one more productive than 'HMX 0586' and 'HMX 5581' in number of melons per acre (Table 1). Most cultivars produced a high number of melons per acre. 'HMX 5594' produced one of the heaviest melons, and average weight was 5.80 lb per melon. Although weight of HMX 5594' was relatively large, fruit number per acre was among the lowest of the cultivars in the trial. Usually, muskmelon cultivars that produce larger melons, produce fewer melons. Desirable weight of muskmelons is at least 4 lb and melons in the 6 to 8 lb range are desirable for many local markets. Fruit of all cultivars averaged over 4 lb. 'HMX 7605' was among cultivars with the longest fruit. 'Minerva' was among cultivars that had the largest fruit diameter.

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 'Odyssey 7119' and 'Minerva' were among cultivars with the most sutures (Table 2). All cultivars were well netted which is desirable for most markets. 'Acapitan' had heavier netting than 'Athena', 'HMX 5581', 'Minerva' 'Odyssey', and 'Vienna'. Fruit of 'Cruiser' had higher soluble solids than fruit of 'StarFire' and 'SMX 7204'. Soluble solids levels were relatively low for all cultivars. Yield in tons per acre was not significantly different due to cultivar.

Table 1. Yield and fruit measurements of muskmelon cultivars evaluated at The University of Tennessee Middle Tennessee Experiment Station at Spring Hill, 2000.

Cultivar	Marketable yield no./A	Pounds per melon	Melon length (in.)	Melon diameter (in.)	Flesh thickness (in.)
Acapitan	10704 ab[z]	4.16 bc	6.50 d	5.75 c	1.44 b
Athena	11344 a	4.20 bc	6.82 bcd	6.10 bc	1.48 ab
Cruiser	9892 abc	4.25 bc	6.70 cd	6.20 bc	1.47 ab

HMX 0586	10436 abc	4.21bc	6.98 bcd	6.70 ab	1.47 ab
HMX 5581	8168 bc	5.31 abc	7.25 bcd	6.52 abc	1.50 ab
HMX 5594	7714 c	5.80 a	7.65 ab	6.62 ab	1.63 a
HMX 7605	9166 abc	4.80 abc	8.18 a	6.70 ab	1.53 ab
HMX 7608	9801 abc	4.64 abc	6.78 bcd	6.50 abc	1.41 b
HMX 8594	10436 abc	4.45 bc	7.05 bcd	6.28 bc	1.44 b
Minerva	9438 abc	5.38 ab	7.60 abc	7.08 a	1.44 b
StarFire	9710 abc	4.02 c	6.50 d	6.08 bc	1.38 b
Odyssey	9710 abc	4.74 abc	7.48 abc	6.52 abc	1.50 ab
SMX 7204	9257 abc	4.70 abc	7.35 abcd	6.72 ab	1.38 b
Vienna	9529 abc	5.04 abc	7.20 bcd	6.78 ab	1.44 b

[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 characteristics and yield in total tons per acre of muskmelon cultivars evaluated The University of Tennessee Middle Tennessee Experiment Station at Spring Hill, 2000.

Cultivar	Netting rating[x]	Suture rating[x]	Appear-ance rating[x]	Soluble Solids[y]	Yield - tons/A.	Seed sourc
Acapatian	9.5 a[z]	1.50 bcd	6.8 a	11.5 abc	22.2 a	Abbott + C
Athena	6.8 b	2.75 abcd	7.0 a	11.1 abc	22.2 a	Novartis
Cruiser	8.8 ab	1.25 cd	8.0 a	12.6 abc	21.5 a	Harris Mor

HMX 0586	8.0 ab	3.75 abcd	8.8 a	12.2 ab	22.1 a	Harris Moran
HMX 5581	7.2 b	3.50 abcd	7.5 a	12.0 abc	21.6 a	Harris Moran
HMX 5594	8.8 ab	2.50 abcd	8.0 a	10.4 abc	21.7 a	Harris Moran
HMX 7605	8.8 ab	1.75 bcd	8.0 a	11.5 abc	22.0 a	Harris Moran
HMX 7608	8.8 ab	4.00 abc	7.5 a	11.4 abc	22.7 a	Harris Moran
HMX 8594	8.2 ab	1.00 d	8.0 a	11.6 abc	23.3 a	Harris Moran
Minerva	6.8 b	4.25 a	7.5 a	10.2 abc	25.1 a	Novartis
StarFire	7.5 ab	1.50 bcd	7.2 a	10.0 bc	19.4 a	Harris Moran
Odyssey	7.0 b	4.75 a	7.0 a	11.2 abc	23.2 a	Sun
SMX 7204	7.5 ab	3.25 abcd	8.0 a	9.8 c	21.4 a	Sun
Vienna	7.2 b	3.50 abcd	8.0 a	10.2 abc	23.5 a	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 appearance.

[Y] Soluble solids by hand held refractometer.

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.