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Midwest Cantaloupe Variety Trial in Southwest Indiana — 2014

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Introduction

Indiana is 3rd in the United States in both the weight of cantaloupe (*Cucumis melo* L.) produced and the total value of the crop, behind only California and Arizona. The latter two states are primarily producers of Western shipper cantaloupes, making Indiana the leader in Eastern cantaloupe production (USDA, 2014). The total value of Indiana's cantaloupe production in 2013 was \$11.5 million. This figure, while important, does not count the "ripple effect" of cantaloupe production in the Indiana economy. One of the primary starting points for a commercial producer is finding a variety capable of good yield and fruit quality. The objective of this project is to evaluate the growth and yield of 12 cantaloupe varieties grown under southwestern Indiana conditions.

Materials and Methods

On April 15, 2014, the experiment was established when seeds of each variety were sown. This season there were 12 varieties submitted from various seed companies. Seeds were started in 50-cell black seedling flats (T.O. Plastics, Clearwater, MN) using a peat-based, soilless media, Jiffy-Mix Grower's Choice Plus (Jiffy Products of America, Lorain, Ohio). The experimental field was prepared by tillage, application of fertilizer material, formation of raised beds, and installation of black plastic mulch and drip tape. Fertilizer was applied at a per-acre rate of 350 lbs. (46-0-0), 100 lbs. (0-0-60), and 200 lbs. of pelletized lime. Planting density was 22 plants per plot, with plot dimensions of 6 feet x 55 feet. In-row plant spacing was 2.5 feet. On May 12, 2014, transplants were planted in the field in the appropriate plots. The experimental design was a randomized complete block with three replicates. Plants were harvested three times per week over four weeks for a total of 12 harvests beginning July 18 and ending on August 12. Fruit number, weight, and average fruit weight were all collected during harvest. Additionally nine fruit from each variety (three fruit per replicate) were evaluated for various quality parameters such as soluble solids, fruit firmness, seed cavity length, seed cavity width, overall fruit length, overall fruit width, and rind thickness. Data were analyzed by Fisher's least significant difference test using SAS statistical programs (SAS Institute, Cary, NC.). Pests were managed using recommendations in the *Midwest Vegetable Production Guide for Commercial Growers, 2014* (Egel et al, 2014).

Results

The highest brix reading was obtained from NUN 9000, which also gave the reading for firmest flesh. The next two brix readings were for the hybrids NUN 26187 and Samoa. Wrangler, NUN 26367 MEM and Eclipse had the highest number of fruit per acre, with the former having significantly more fruit than any other hybrid. NUN 26367 MEM had the highest weight of fruit per acre numerically. Majus had significantly more fruit per acre than any other hybrid in harvests 1-4." NUN 26317 MEM produced a significantly larger fruit than any other hybrid.

Acknowledgments

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Table 1. Varieties, seed companies, and comments for SW Purdue Ag. Center cantaloupe trial, 2014.

| Variety | Seed Source | Comments |
|---------------|-----------------|-------------|
| ACR 4067 ES | Nunhems | |
| Aphrodite | Syngenta | |
| Athena | Syngenta | |
| Eclipse | Rupp Seeds Inc. | SWPAC entry |
| Majus | Rupp | |
| NUN 26187 MEM | Nunhems | |
| NUN 26317 MEM | Nunhems | |
| NUN 26367 MEM | Nunhems | |
| NUN 9000 | Nunhems | |
| Samoa | Harris Moran | |
| Tirreno | Rupp | |
| Wrangler | Hollar | SWPAC entry |

Table 2. Fruit quality of cantaloupe varieties, 2014.

| Variety | Brix ¹ | Rind Thickness (in.) | Length of Cavity (in.) | Width of Cavity (in.) | Firmness (lbs. force) | Fruit Length (in.) | Fruit Width (in.) |
|---------------|-------------------|----------------------|------------------------|-----------------------|-----------------------|--------------------|-------------------|
| NUN 9000 | 13.6 a | 0.31 cde | 5.08 cde | 2.7 def | 9.6 a | 7.9 de | 6.9 ef |
| NUN 26187 MEM | 12.2 b | 0.25 e | 4.72 de | 2.6 efg | 8.8 ab | 7.2 e | 6.5 fg |
| Samoa | 11.8 bc | 0.29 de | 5.91 b | 2.8 cdef | 6.3 dce | 8.5 bc | 7.2 de |
| Majus | 11.6 bc | 0.34 cde | 5.51 bc | 2.8 cde | 4.1 efg | 8.0 cd | 6.9 ef |
| Tirreno | 11.3 bcd | 0.41 bcd | 5.47 bc | 2.6 defg | 8.0 abc | 8.3 bcd | 6.9 ef |
| Wrangler | 11.1 cd | 0.35 cde | 4.69 e | 2.3 g | 5.6 defg | 7.3 e | 6.1 g |
| Aphrodite | 10.9 cd | 0.43 bc | 5.55 bc | 3.9 a | 5.4 defg | 8.5 bcd | 8.2 b |
| Athena | 10.6 cde | 0.42 bc | 5.08 cde | 3.1 bc | 3.7 fg | 7.9 de | 7.1 de |
| ACR 4067 ES | 10.6 cde | 0.52 b | 5.51 bc | 2.8 cdef | 6.0 dcef | 8.6 bc | 7.6 cd |
| NUN 26367 MEM | 10.4 de | 0.34 cde | 5.20 cd | 2.4 fg | 6.7 bcd | 8.8 b | 7.4 de |
| NUN 26317 MEM | 9.6 e | 0.72 a | 7.28 a | 3.0 bcd | 7.2 bcd | 11.3 a | 8.9 a |
| Eclipse | 9.6 e | 0.31 cde | 4.84 de | 3.4 b | 3.4 g | 8.1 cd | 8.1 bc |

¹Brix: Percent soluble solids are positively correlated with sugar content in the fruit. Averages in columns separated by Fisher's least significant difference test ($P \leq 0.05$), averages with the same letters are not statistically significantly different.

Table 3. Total harvest of cantaloupe varieties, 2014.

| Variety | Number of Fruit per Acre | Weight (lbs.) per Acre | Mean Fruit Weight (lbs.) |
|---------------|--------------------------|------------------------|--------------------------|
| Wrangler | 7,163 a ¹ | 31,647 cde | 4.4 g |
| NUN 26367 MEM | 5,711 b | 43,121 a | 7.5 cd |
| Eclipse | 5,082 bc | 37,707 ab | 7.4 d |
| Athena | 4,888 bcd | 30,650 cdef | 6.3 e |
| NUN 26187 MEM | 4,840 cd | 25,893 f | 5.3 f |
| NUN 9000 | 4,792 cd | 29,940 ef | 6.2 e |
| Majus | 4,646 cde | 28,507 ef | 6.2 e |
| Aphrodite | 4,211 defg | 35,787 bcd | 8.5 b |
| Samoa | 3,824 efg | 28,021 ef | 7.5 d |
| ACR 4067 ES | 3,630 fg | 30,678 cdef | 8.4 b |
| Tirreno | 3,388 g | 25,075 f | 7.4 d |
| NUN 26317 MEM | 2,323 h | 32,382 bcde | 13.9 a |

¹Averages in columns separated by Fisher's least significant difference test ($P \leq 0.05$), averages with the same letters are not statistically significantly different.

Table 4. Harvest 1-4 of cantaloupe varieties, 2014.

| Variety | Number of Fruit per Acre | Weight (lbs.) per Acre | Mean Fruit Weight (lbs.) |
|---------------|--------------------------|------------------------|--------------------------|
| Majus | 919.6 a ¹ | 3,934.9 a | 4.3 ab |
| Wrangler | 580.8 b | 2,026.0 b | 3.8 abc |
| Athena | 193.6 c | 1,041.6 bc | 3.2 abc |
| Eclipse | 96.8 c | 742.5 cd | 5.1 a |
| Tirreno | 48.4 c | 119.1 cd | 0.8 dc |
| Aphrodite | 48.4 c | 246.8 cd | 1.7 bcd |
| NUN 26187 MEM | 48.4 c | 152.9 cd | 1.1 dc |
| Samoa | 0 c | 0 d | 0 d |
| ACR 4067 ES | 0 c | 0 d | 0 d |
| NUN 26367 MEM | 0 c | 0 d | 0 d |
| NUN 26317 MEM | 0 c | 0 d | 0 d |
| NUN 9000 | 0 c | 0 d | 0 d |

¹Averages in columns separated by Fisher's least significant difference test ($P \leq 0.05$), averages with the same letters are not statistically significantly different.

Table 5. Harvest 5-8 of cantaloupe varieties, 2014.

| Variety | Number of Fruit per Acre | Weight (lbs.) per Acre | Mean Fruit Weight (lbs.) |
|---------------|--------------------------|------------------------|--------------------------|
| Wrangler | 4,549.6 a ¹ | 20,748 cde | 4.6 h |
| Eclipse | 4,210.8 ab | 31,594 a | 7.5 de |
| Athena | 3,872.0 ab | 24,330 bc | 6.3 f |
| Aphrodite | 3,436.4 bc | 30,107 ab | 8.8 b |
| NUN 26367 MEM | 2,952.4 cd | 23,343 bcd | 7.9 cd |
| NUN 9000 | 2,516.8 d | 15,763 ef | 6.2 f |
| NUN 26187 MEM | 2,371.6 de | 12,745 f | 5.4 g |
| Majus | 2,323.2 de | 15,089 ef | 6.6 f |
| Samoa | 2,274.8 de | 16,667 edf | 7.4 de |
| Tirreno | 1,597.2 fe | 11,033 f | 6.9 ef |
| ACR 4067 ES | 1,306.8 fg | 10,875 f | 8.3 bc |
| NUN 26317 MEM | 677.6 g | 9,890 f | 14.7 a |

¹Averages in columns separated by Fisher's least significant difference test ($P \leq 0.05$), averages with the same letters are not statistically significantly different.

Table 6. Harvest 9-12 of cantaloupe varieties, 2014.

| Variety | Number of Fruit per Acre | Weight (lbs.) per Acre | Mean Fruit Weight (lbs.) |
|---------------|--------------------------|------------------------|--------------------------|
| NUN 26367 MEM | 3,098 a ¹ | 21,928 ab | 7.1 def |
| ACR 4067 ES | 3,049 a | 25,287 a | 8.3 b |
| NUN 26187 MEM | 3,001 a | 15,994 bcd | 5.3 h |
| NUN 9000 | 2,856 a | 17,285 bc | 6.0 gh |
| Wrangler | 2,565 ab | 10,834 def | 4.2 i |
| Samoa | 2,420 abc | 17,939 bc | 7.5 bcd |
| Tirreno | 2,323 abc | 18,384 bc | 8.0 bc |
| NUN 26317 MEM | 2,033 bcd | 27,321 a | 13.4 a |
| Majus | 1,742 cd | 11,122 def | 6.4 efg |
| Eclipse | 1,210 ef | 7,880 ef | 6.4 efg |
| Athena | 1,113 ef | 7,067 ef | 6.3 fg |
| Aphrodite | 726 f | 5,433 f | 7.2 cde |

¹Averages in columns separated by Fisher's least significant difference test ($P \leq 0.05$), averages with the same letters are not statistically significantly different.

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