

University of Rhode Island

DigitalCommons@URI

University of Rhode Island Vegetable
Production Research Reports

College of the Environment and Life Sciences

2019

URI 2019 Carrot Variety Trials – Early Carrots

Rebecca Brown

brownreb@uri.edu, brownreb@uri.edu

Follow this and additional works at: https://digitalcommons.uri.edu/riaes_bulletin

Recommended Citation

Brown, Rebecca, "URI 2019 Carrot Variety Trials – Early Carrots" (2019). *University of Rhode Island Vegetable Production Research Reports*. Paper 31.

https://digitalcommons.uri.edu/riaes_bulletin/31https://digitalcommons.uri.edu/riaes_bulletin/31

This Article is brought to you for free and open access by the College of the Environment and Life Sciences at DigitalCommons@URI. It has been accepted for inclusion in University of Rhode Island Vegetable Production Research Reports by an authorized administrator of DigitalCommons@URI. For more information, please contact digitalcommons@etal.uri.edu.

URI 2019 Carrot Variety Trials – Early Carrots



Dr. Rebecca Nelson Brown brownreb@uri.edu or 401-874-2755 for more information

Entries

Five early carrot varieties were compared. 'Mokum', 'Yaya' and 'Napoli' are Bejo varieties, provided as pelleted seed by Johnny's Selected Seeds. 'Caravel' and 'Calibra' were developed by Carosem in Germany and were provided as raw seed by Osborne Seeds. All varieties are orange Nantes type.

Trial Conditions

The 2019 carrot trial was seeded May 26 and 27 using a Jang J-1 push seeder set to 1 inch spacing within row. Each 10 foot long plot contained 3 rows spaced 12 inches apart; plots were on 5 foot centers. Trial design was a randomized complete block with three replications. Prior to seeding the field was amended with Nature's Turf 8-1-9 organic fertilizer to provide 50 lbs N/acre and lime at 435 lbs per acre to ensure adequate calcium levels. Treflan herbicide was incorporated into the top 3 inches of soil for weed control. Overhead irrigation was provided as needed. The herbicide provided only partial control of weeds, and weed pressure was considerable, with significant differences between blocks, despite repeated cultivation and hand weeding. Five weeks after seeding carrots were side-dressed with 12-0-12 to provide an additional 50 lbs N/acre. The center 5 feet of each plot was harvested August 2, 70 days after planting.

After harvest carrots were graded into marketable and cull, with marketable carrots sub-divided into roots which met USDA standards for length, diameter, and straightness and ones which did not but would be acceptable in local direct retail outlets. Counts and weights were recorded for each category. Five carrots randomly selected from those meeting USDA standards were used to measure root length and width and then juiced to determine sugar content. Data were analyzed using mixed models ANOVA and post-hoc comparison of least squares means.

Results

There were no significant differences among varieties for canopy height, which averaged 11.6 inches. Shoulders remained below the soil for all varieties. No bolting was observed, and carrots were harvested prior to development of *Alternaria* leafspot.



Figure 1. West end of early carrot trial on July 19.



Figure 2. Carrot plots on July 19, 14 days before harvest. From left to right are Caravel, Calibra, Mokum, Yaya and Napoli. Photos are of plots on the east end of the field, which had the lowest weed pressure.

Yields

There were no significant differences among varieties for the distribution of yield across grades. The average across all varieties was 50% marketable yield by count, and 63% by weight. Culls were mostly too small, not straight, or had forked roots; the high cull rate was likely a result of weed pressure and heavy soil. ‘Yaya’ had the highest yields, averaging 172 total carrots and 89 marketable carrots per plot.

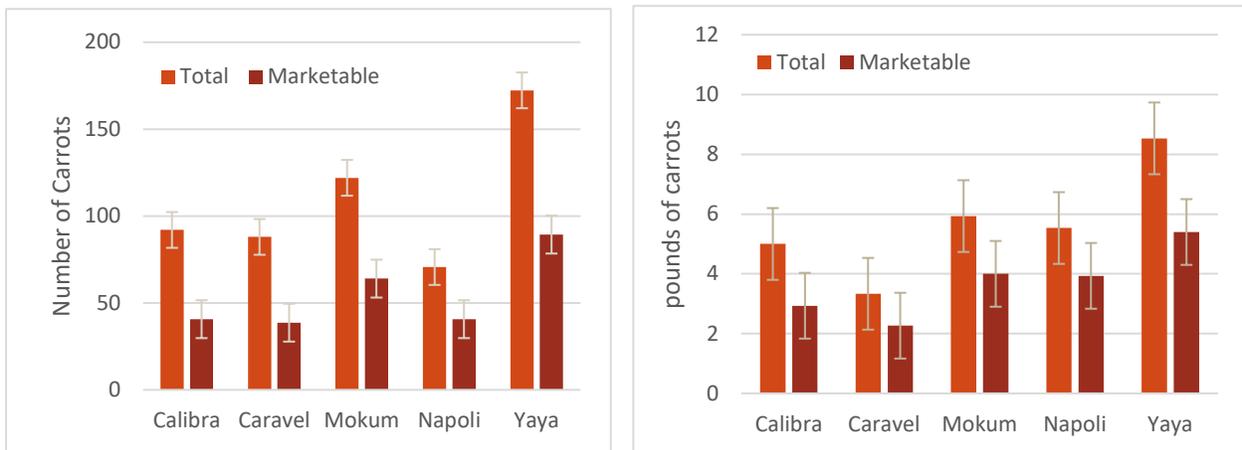


Figure 3. Number (left) and weight (right) of carrots per 5 foot section (15 row feet). Values are averages across three replications. Error bars indicate standard error for comparison between bars of the same color.

‘Mokum’ ranked second with 122 total carrots and 64 marketable carrots per plot. Total weight per plot for ‘Yaya’ averaged 8.5 pounds, significantly higher than all other entries. Marketable weight averaged 5.4 pounds, significantly more than ‘Calibra’ and ‘Caravel’. ‘Mokum’ ranked second for weight as for count.

Root Characteristics

‘Calibra’ had the longest roots, with the marketable roots averaging 6.4 inches. ‘Caravel’ averaged only 4.8 inches, below the minimum length for USDA standards. ‘Calibra’ was significantly longer than all other entries, ‘Caravel’ was significantly shorter than all other entries, and the other three entries were similar to each other. ‘Napoli’ had significantly fatter roots than the other entries, while ‘Calibra’ roots were significantly thinner than all entries except ‘Mokum’. Root length was the characteristic most strongly affected by competition from weeds, with roots getting shorter as weed populations increased across the field. ‘Napoli’ had the heaviest roots, averaging 10 carrots per pound.

Flavor

'Napoli' and 'Yaya' were the sweetest varieties, averaging 8.1 and 7.9% Brix respectively. 'Mokum', 'Caravel' and 'Calibra' were similar to each other but significantly less sweet than 'Napoli' and 'Yaya'. The flavor of 'Napoli' was sweet with a sour finish, while 'Yaya' was bland. The other three entries had a typical carrotty flavor, with slight bitterness mixed with sweetness.

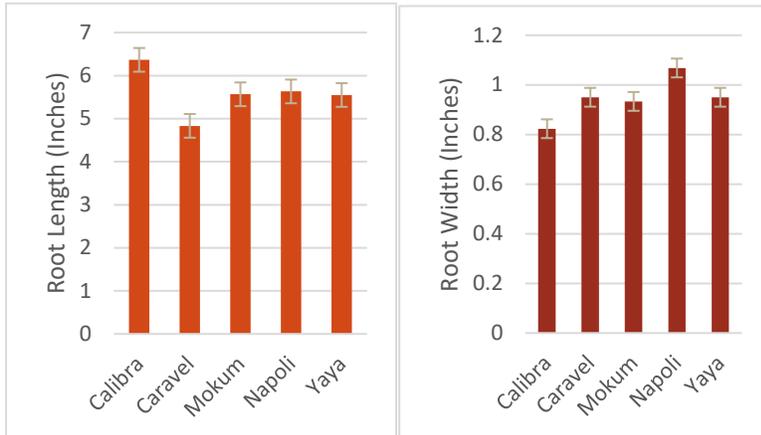


Figure 4. Root lengths and widths for the five carrot varieties. Values are averages across 15 randomly selected marketable roots per variety. Widths were measured across the shoulders.

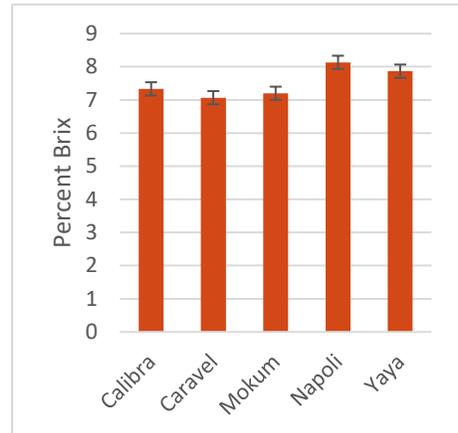


Figure 5. Soluble solids levels for early carrot varieties. Data are averages across three bulk samples of five carrots each.

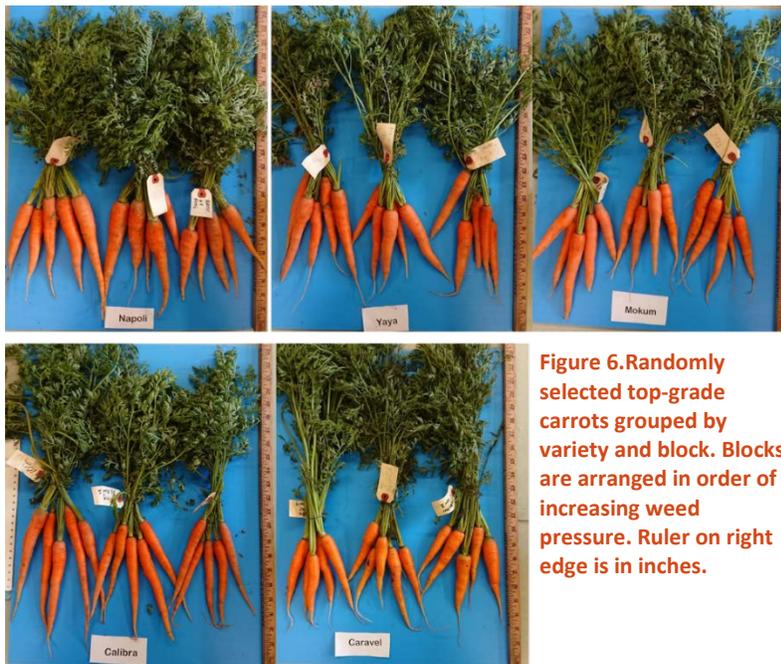


Figure 6. Randomly selected top-grade carrots grouped by variety and block. Blocks are arranged in order of increasing weed pressure. Ruler on right edge is in inches.

Conclusions

'Yaya' appears to be the best choice as an early carrot for Rhode Island. It was the top yielding variety, and tied with 'Napoli' for sweetness. However, sugar levels in 'Yaya' appear to be very sensitive to stress. Brix values ranged from 8.6% at the east end of the field to 7.2% at the west end. In contrast, 'Napoli' ranged from 8.4% to 8%, and 'Mokum' was a consistent 7.2% across the entire field. 'Calibra' is listed as an early carrot by Carosem, but should probably be grouped

with 'Baltimore' and 'Goldfinger' as an early main season variety under New England conditions, as it was less mature than the other varieties at harvest.

Acknowledgements

This trial was funded by the Rhode Island Agricultural Experiment Station and University of Rhode Island Cooperative Extension. Abby MacLeod, Emma Fernandez, Yaqoob Iqbal and Fari Gheshm assisted with field work.