

# 2019 Kabocha Squash Variety Trial



Trial coordinated by Ethan Grundberg and conducted on muck soils in Orange County, New York with the cooperation of Jados Produce Farms

# Trial Details

- 31 dark rind kabocha varieties were included and evaluated for their suitability for muck soil production in Orange County, NY
- Seed generously provided by seed companies listed on slide 35
- Direct seeded using a jab planter at 1 seed per foot on June 14<sup>th</sup>, 2019
- Plots were 50 row feet long. 14 feet left between rows to minimize vine crossing
- All crop protectants and weed management completed by Jados Produce Farms, including imidacloprid in-furrow pre-planting for cucumber beetle suppression.
- Vine length was recorded on August 7, 2019 by averaging three randomly selected vines per variety. Storage data was taken on November 20, 2019.
- A 10' x 10' sub-plot was harvested on September 19, 2019 to estimate variety yield.
- A portion of the crop was stored in wooden slatted onion boxes in a barn with no climate control. Stored squash was evaluated for marketability on November 20, 2019.

# Summarized Trial Data

Variety	Source	Seed Cost \$/lb	Total Marketable Yield per 100 sq ft (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	Estimated Yield Per Acre (lbs)	Estimated Bulk Bins Per Acre	Lbs of Squash Yield per \$ seed cost	11/20/2019 % of Stored Crop Rotten
Marron D	Seedway	\$233.72	89.08	7.42	6.87	38,803	43.1	166.02	14%
Sake F1	NE Seed	\$113.49	82.57	3.75	7.07	35,967	40.0	316.93	22%
Special Export	Stokes	\$246.03	81.7	4.30	6.95	35,589	39.5	144.65	17%
Geisha F1	NE Seed	\$102.13	72.06	7.21	7.77	31,389	34.9	307.36	50%
Kogiku	Kitazawa	\$145.00	70.32	2.01	5.30	30,631	34.0	211.25	0%
TK-85	Tainong	N/A	69.5	5.79	7.62	30,274	33.6	N/A	40%
Hai	Clifton	\$ 74.95	67.88	9.70	8.76	29,569	32.9	394.49	0%
TK-172	Tainong	N/A	62.88	5.24	7.52	27,391	30.4	N/A	0%
TN-01	Kitazawa	\$110.00	57.26	4.09	6.98	24,942	27.7	226.75	0%
Ajiko Ebisu	Tainong	\$145.00	56.54	3.77	6.82	24,629	27.4	169.85	0%
Thunder	Rupp	\$145.07	56.13	4.32	6.69	24,450	27.2	168.54	25%
Aji Grande	Tainong	\$145.00	54.3	4.18	6.83	23,653	26.3	163.12	0%
Hokkori Hybrid	Kitazawa	\$116.00	53.62	4.13	6.59	23,357	26.0	201.35	0%
Sweet Mama	Stokes	\$261.80	52.72	5.27	7.43	22,965	25.5	87.72	N/A
Delica	Stokes	\$252.95	52.56	4.38	7.00	22,895	25.4	90.51	14%
Eclipse	Rupp	\$148.25	49.52	4.95	7.26	21,571	24.0	145.51	17%
T-133	Seedway	\$183.82	49.12	4.47	6.68	21,397	23.8	116.40	0%
Super Delight	Stokes	\$334.25	48.26	3.71	6.01	21,022	23.4	62.89	50%
Kurinishiki	Kitazawa	\$ 75.00	45.94	4.18	6.69	20,011	22.2	266.82	33%
Space Station	Rupp	\$353.52	45.83	3.82	6.52	19,964	22.2	56.47	10%
TK-88	Tainong	\$250.00	45.01	3.46	7.11	19,606	21.8	78.43	14%
TK-292	Tainong	N/A	43.51	4.83	7.49	18,953	21.1	N/A	0%
Super Nishiki Ebisu	Tainong	\$145.00	41.82	5.23	7.37	18,217	20.2	125.63	0%
Aji Max (TN-02)	Tainong	\$145.00	39.63	3.96	6.54	17,263	19.2	119.05	20%
TK-65	Tainong	N/A	37.12	3.09	7.34	16,169	18.0	N/A	43%
Cha Cha	Johnnys	\$147.00	34.81	3.48	6.22	15,163	16.8	103.15	25%
TK-50	Tainong	\$200.00	28.18	4.70	7.13	12,275	13.6	61.38	25%
HKS-18-947	NE Seed	N/A	23.57	3.93	6.52	10,267	11.4	N/A	0%
Black Forest	Johnnys	\$122.83	22.58	2.82	5.75	9,836	10.9	80.08	40%
HKS-18-948 (Samurai)	NE Seed	N/A	22.08	3.68	6.61	9,618	10.7	N/A	17%
Shokichi Black	Kitazawa	N/A	15.86	1.76	4.19	6,909	7.7	N/A	75%

For more details,  
contact Ethan  
Grundberg at  
[eg572@cornell.edu](mailto:eg572@cornell.edu)

Seed prices  
accurate as of  
2019

# Aji Grande

- Untreated seed from Tainong Seeds
- Good storage potential
- Longer days to maturity



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
23,653	4.18	6.83	0%	12

# Aji Max (TN-02)

- Untreated seed from Tainong Seeds
- Germination was uneven, vine length longer than expected for semi-bush variety
- Slightly rounded fruit developed late despite description as early producer



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
<b>17,263</b>	<b>3.96</b>	<b>6.54</b>	<b>20%</b>	<b>11</b>

# Ajiko Ebisu

- Untreated seed from Tainong Seeds
- 10<sup>th</sup> highest yielder, dark rind and uniform size
- Good storage potential



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
<b>24,629</b>	<b>3.77</b>	<b>6.82</b>	<b>0%</b>	<b>13.67</b>

# Black Forest

- Untreated seed from Johnny's
- Low growing vine, serious stand loss suspected from *fusarium*
- One of the lowest yielding varieties in the trial



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
9,836	2.82	5.75	40%	9

# Cha Cha

- Untreated seed from Johnny's
- Fruit was slightly rounded
- Shorter vine length and light fruit set



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
15,163	3.48	6.22	25%	7



# Delica

- Thiram treated seed from American Takii available from Stokes Seeds
- Middle of the pack yield, but very uniform fruit size



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
<b>22,895</b>	<b>4.38</b>	<b>7.00</b>	<b>14%</b>	<b>11.67</b>

# Eclipse

- FarMore FI400 treated seed from Rupp
- Extremely vigorous vine growth
- Dark rind uniform fruit, but some with buttercup blossom end



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
21,571	4.95	7.26	17%	13.67

# Geisha F1

- Untreated seed from NE Seed
- Very large, powder blue fruit on long vines
- 4<sup>th</sup> highest yielding variety, but did not store well



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
<b>31,389</b>	<b>7.21</b>	<b>7.77</b>	<b>50%</b>	<b>12.33</b>

# Hai

- Thiram treated seed from Clifton Seeds
- Largest fruit in trial with 7<sup>th</sup> highest yield
- Light blue deeply ribbed squash with pale yellow flesh



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
<b>29,569</b>	<b>9.70</b>	<b>8.76</b>	<b>0%</b>	<b>11.67</b>

# HKS-18-947

- Untreated experimental line from DP Seeds/ NE Seed
- Long vines with uniform fruit, but very low yield



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
<b>10,267</b>	<b>3.93</b>	<b>6.52</b>	<b>0%</b>	<b>12.67</b>

# HKS-18-948 (Samurai)

- Unreleased and untreated variety from NE Seed
- Irregular shaped fruit and low yield



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
9,618	3.68	6.61	17%	9.33

# Hokkori Hybrid

- American Takii variety, untreated seed from Kitazawa Seed
- Slightly paler rind fruit on very long vines



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
<b>23,357</b>	<b>4.13</b>	<b>6.59</b>	<b>0%</b>	<b>15</b>

# Kogiku

- Untreated seed from Kitazawa Seeds
- Not a true kabocha type; comparable fruit to Black Futsu that mature late. Excellent yield of many fruit that store well
- Low growing plants with cucumber-like leaves



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
<b>30,631</b>	<b>2.01</b>	<b>5.30</b>	<b>0%</b>	<b>8.33</b>



# Kurinishiki

- Untreated seed from Kitazawa Seed
- Very uniform dark rind fruit with dark orange flesh



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
<b>20,011</b>	<b>4.18</b>	<b>6.69</b>	<b>33%</b>	<b>11.67</b>

# Marron D

- Thiram treated seed from American Takii, available from Seedway
- Highest yielder in the trial
- Uniform dark rind squash



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
<b>38,803</b>	<b>7.42</b>	<b>6.87</b>	<b>14%</b>	<b>8</b>

# Sake F1

- Thiram treated seed from NE Seed
- 2<sup>nd</sup> highest yielding variety and best yield to seed cost ratio in the trial
- Highly uniform fruit, but buttercup blossom end



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
<b>35,967</b>	<b>3.75</b>	<b>7.07</b>	<b>22%</b>	<b>12.33</b>

# Shokichi Black

- Untreated seed from Kitazawa Seed
- Mini kabocha variety produced the lowest yield in the trial
- Severe stand reduction, likely from *fusarium*.



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
<b>6,909</b>	<b>1.76</b>	<b>4.19</b>	<b>75%</b>	<b>9.33</b>

# Space Station

- FarMore FI400 treated seed from Rupp
- Very dark rind fruit
- Plants maintained good foliage cover through harvest



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
<b>19,964</b>	<b>3.82</b>	<b>6.52</b>	<b>10%</b>	<b>13.33</b>

# Special Export



- Thiram treated seed from Stokes Seed
- 3<sup>rd</sup> highest yield in trial
- Dark rind with little mottling



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
<b>35,589</b>	<b>4.30</b>	<b>6.95</b>	<b>17%</b>	<b>12.33</b>

# Super Delight

- Thiram treated seed from Stokes Seed
- Uniform rounded squash
- Poor performance in storage



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
<b>21,022</b>	<b>3.71</b>	<b>6.01</b>	<b>50%</b>	<b>10.67</b>

# Super Nishiki Ebisu



- Untreated seed from Tainong Seed
- Wide, heavily mottled fruit are teardrop shaped
- Maintained good foliar cover through harvest, but lower yielding in this trial



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
18,217	5.23	7.37	0%	11.67



# Sweet Mama

- Thiram treated seed from American Takii, available from multiple sources
- Plants maintained good foliar cover through harvest
- Very uniform, large fruit



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
<b>22,965</b>	<b>5.27</b>	<b>7.43</b>	<b>N/A</b>	<b>10.67</b>

# T-133

- Thiram treated seed from American Takii, available from multiple sources
- Slight teardrop shape to fruit
- Good storage potential, moderate yield



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
21,397	4.47	6.68	0%	11.33

# Thunder

- FarMore FI400 treated seed from Rupp
- Good leaf coverage through harvest
- Flatter, uniform fruit with subtle mottling



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
24,450	4.32	6.69	25%	9.33

# TK-172

- Untreated seed from Tainong Seeds
- Unreleased hybrid with 8<sup>th</sup> highest yield in the trial
- Flat, wide squash with paler orange flesh



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
<b>27,391</b>	<b>5.24</b>	<b>7.52</b>	<b>0%</b>	<b>12.67</b>

# TK-292

- Untreated seed from Tainong Seeds
- Similar to TK-172, but smaller fruit, lower yield, and less mottling on rind



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
18,953	4.83	7.49	0%	12.67

# TK-50



- Untreated seed from Tainong Seeds
- Plants were wilted throughout season; possible *fusarium* issue
- More rounded fruit with heavy mottling



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
12,275	4.70	7.13	25%	12.67

# TK-65

- Untreated seed from Tainong Seeds
- Flat, smaller, mottled squash on long vines
- Very prone to rot in storage in this trial



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
16,169	3.09	7.34	43%	13

# TK-85



- Untreated seed from Tainong Seeds
- 6<sup>th</sup> highest yielding variety in trial
- Long vines, lower growth habitat, and large average size, but poor storage in this trial



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
<b>30,274</b>	<b>5.79</b>	<b>7.62</b>	<b>40%</b>	<b>14.67</b>



# TK-88

- Untreated seed from Tainong Seeds
- Wide, flat squash with distinctive lighter blue stripes



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
19,606	3.46	7.11	14%	10.33

# TN-01

- Untreated seed from Tainong Seeds
- Uniform fruit on longer vines
- 9<sup>th</sup> highest yielding variety in trial



Estimated Yield Per Acre (lbs)	Avg Squash Weight (lbs)	Avg Squash Diameter (inches)	% of Stored Crop Rotten	Avg Vine Length (feet)
<b>24,942</b>	<b>4.09</b>	<b>6.98</b>	<b>0%</b>	<b>14.33</b>

# Thanks to those who supported this trial!

## Host Farm

Lou and Joe Jados, Jados Produce Farms

## Seed Donation

Tainong Seed, I-Lung Liao

Stokes Seeds, Carol Korey

American Takii, Mitchell Young

Rupp Seeds, Jay Ruwett

Kitazawa Seed Co., Maya Shiroyama

Johnny's Selected Seeds, Amy Dolley

Clifton Seeds, Mark Upton,

dp/NE Seeds, Irma Laurean

<https://www.tainongseeds.com/>

<https://www.stokeseeds.com/us/>

<http://www.takii.com/>

<https://www.ruppseeds.com/>

<https://www.kitazawaseed.com/>

<https://www.johnnyseeds.com/>

<https://www.cliftonseed.com/>

<https://www.neseed.com/>

## Data Collection

Nate Mengaziol

Natasha Field

Nathaniel Lartey

## Editing

Sarah Tobin