

Choosing the Best Varieties: Zucchini, Summer Squash, and High Tunnel Cucumbers

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The difference between success and failure with a crop often hinges upon variety choice. In this talk, I will present the results from two years of variety trials conducted in Durham, NH. This will include green and yellow zucchini, summer squash, and high tunnel cucumbers.

Zucchini

In 2010 and 2011, eleven green and five yellow zucchini varieties were evaluated in a replicated field trial. Fruits were harvested every Mon, Wed and Fri from 7/2-8/20 in 2010, and from 7/11-8/19 in 2011. Season-long results from both years are shown below:

Cultivar ^a	Color	Rank Order Yield (no. fruit) ^b		Rank Order Yield (weight)		Rank Order Avg. fruit size	
		2010	2011	2010	2011	2010	2011
<i>Green Zucchini</i>							
Cashflow (JSS)	Medium green	3	2	1	1	5	8
Dunja (HM)	Dark green	-	13	-	11	-	5
Midnight Lightning (HM)	Dark green	8	8	9	10	8	9
Partenon (JSS)	Medium green	-	12	-	9	-	4
Payroll (SW)	Medium green	4	4	4	4	4	6
Plato (JSS)	Dark green	5	3	7	5	6	10
Reward (H)	Medium green	1	6	2	8	7	7
Spineless Beauty (H)	Medium green	9	11	5	6	2	2
Spineless Perfection (R)	Dark green	-	10	-	7	-	3
Tigress (H)	Medium green	5	5	3	2	3	1
Zucchini Elite (H)	Medium green	10	-	6	-	1	-
<i>GoldenYellow Zucchini</i>							
Golden Delight (R)	Bright yellow	-	9	-	13	-	12
Golden Glory (R)	Bright yellow	-	7	-	12	-	11
Golden Rod (H)	Bright yellow	-	1	-	3	-	13
Meteor (JSS)	Bright yellow	2	-	8	-	9	-
Sebring (JSS)	Bright yellow	7	-	10	-	10	-

^a Seeds provided by or purchased from Harris Seeds (H), High Mowing Seeds (HM), Johnny's Selected Seeds (JSS), Rupp (R) or Seedway Seeds (SW).

^b Ranks range from 1 = greatest to 10 or 13 = least.

Of the green zucchinis, Reward, Cashflow, Payroll, Tigress and Plato were among the four top yielding varieties in at least one year. Across both years, Cashflow and Payroll consistently had the highest yields (both in terms of number of fruit and weight). Zucchini Elite, Spineless Beauty, Spineless Perfection, Dunja, Partenon and Midnight Lightning were among the lowest yielding varieties; several of these (Zucchini Elite, Spineless Beauty, Spineless Perfection, as well as Tigress) had the largest fruits, which may have reduced fruit set.

In general, the yellow zucchini varieties produced smaller fruits and had lower yields. However, two yellow varieties outperformed most green varieties. In 2010, Meteor had the second highest yields in the trial; and in 2011, Golden Rod had the highest yields (over 25 fruit per plant).

On August 9, 2011 each plot was evaluated for powdery mildew (PM) severity on a 0-5 scale (0 = no visible sporulation, 5 – all leaves and petioles show heavy sporulation). Only two varieties showed consistent tolerance; Dunja (all plots had a rating of 1), and Golden Glory (all plots were rated 2). All other varieties had average ratings of 2.5 or greater.

Yellow Summer Squash

In 2010 and 2011, ten varieties of summer squash were evaluated in a replicated trial along with zucchini cultivars (described above). Season-long results from both years are shown below:

Cultivar ^a	Color	'B' gene ^b	Rank Order Yield (no. fruit)		Rank Order Yield (weight)		Rank Order Avg. fruit size		Comments
			2010	2011	2010	2011	2010	2011	
Cheetah (H)	Yel	-	-	8	-	5	-	3	Slender, smooth fruit.
Cougar (H)	Yel	B	3	4	2	3	2	2	Rough, teardrop shaped fruit. Spiny plant.
Enterprise (SW)	Yel	-	5	7	4	7	2	4	Smooth, tapered fruit. Extremely spiny plant.
Fortune (SW)	Yel	B	2	1	3	2	6	8	Slightly ridged; teardrop-shaped golden fruit.
Goldprize (R)	Yel	-	-	6	-	4	-	1	Tapered, fairly smooth yellow fruits.
Slick Pik (JSS)	Yel	-	6	3	6	8	5	7	Slender elongated fruit. Smooth stems.
Success PM (HM)	Yel	-	8	5	8	6	4	6	Smooth, teardrop-shaped fruit. Tall plant, not PMR in 2011.
Sunray (H)	Yel	B	4	-	7	-	6	-	Similar to Fortune; but with shorter fruits
Superpik (H)	Yel	B	1	2	1	1	8	5	Long, rough fruit. Extremely spiny plants.
Zephyr (JSS)	Yel/Grn	-	7	-	5	-	1	-	Smooth, long yellow fruit w/light green tips and pale stripes.

^a Seeds provided by or purchased from Harris Seeds (H), High Mowing Seeds (HM), Johnny's Selected Seeds (JSS), and Seedway Seeds (SW).

^b The 'B' or 'precocious' gene causes the stem of the squash to be yellow rather than green. Varieties with this gene do not show symptoms when infected by viruses. These leaves of these varieties may turn bright yellow under certain environmental stresses, as they did in June 2011.

Over both years, Superpik and Fortune produced significantly more fruit per plant (over 29 fruit per plant, on average) than the lowest producing summer squash, Success PM (20.5 fruit per plant, on average). In 2011 each plot was evaluated for PM severity as described above. All summer squash varieties, including the PM tolerant Success PM, were moderately susceptible,

with average PM ratings of 2.5 or greater. Fruit appearance and shape, and ease of picking, were highly variable between the varieties we tested.

High Tunnel Cucumbers

In 2010, fourteen varieties of cucumbers were evaluated in a high tunnel in Durham NH. They were trellised and pruned to a single leader. Yields, quality, and susceptibility to powdery mildew and mites were assessed. Season-long results are shown below:

Cultivar ^a	Type	No. fruits per plant	% Not marketable	Yield (lbs) per plant	PM ^b	Mite ^c	Comments
Genuine (JSS)	Slicer	27.3	13.3	13.7	1	0	
Green Finger (HM)	Slicer	<u>9.3</u>	<u>31.3</u>	<u>8.2</u>	0	0	Poor fruit set.
Saber (HM)	Slicer	30.5	17.2	12.8	1.3	0	
Tasty Jade (JSS)	Slicer (long)	26.7	21.2	15.4	1.3	0	
Tasty Green (S)	Slicer (long)	<u>15.8</u>	<u>31.5</u>	<u>8.6</u>	0	0.7	Poor fruit set.
Carmen (S)	Oriental	18.2	19.3	9.5	0	3.0	No spines.
Orient Express (H)	Oriental	31.1	16.2	16.7	0.7	0.3	
Orient Express II (S)	Oriental	28.4	18.7	15.9	1.7	0	
Ballerina (SW)	Pickle	37.3	13.5	9.2	0	2.5	
Diamant (JSS)	Pickle	27.1	9.2	8.2	0.7	2.7	Extremely spiny.
Vertina (JSS)	Pickle	42.8	11.7	10.5	0	2.7	
Diva (H)	Beit alpha	22.1	22.7	9.5	0	0.3	
Katrina (JSS)	Beit alpha	32.8	21.4	11.2	0	5.0	
Socrates (JSS)	Beit alpha	33.3	20.0	13.7	0	3.7	

^aSeeds provided by or purchased from Harris Seeds (H), High Mowing Seeds (HM), Johnny's Selected Seeds (JSS), Seedway Seeds (SW) and Stokes Seeds (S).

^bPM (Powdery mildew) was evaluated on a 0-5 scale on 7/26/10, where 0 = no symptoms, 5 = sporulation evidence on entire surface of every leaf.

^cMite damage was evaluated on 7/26/10, where 0 = no stippling or webbing evident, 5 = yellowing, stippling, and webbing was observed on all leaves.

Choosing the appropriate TYPE of cucumber for your market is perhaps the most important decision. The Oriental types were excellent for slicing. However, some customers were not sure what they were, because they were unfamiliar to them. Genuine and Saber looked a lot like field slicers, so would be good choices for markets that wanted traditional slicers. Green Finger was a slicer that had poor fruit set (not parthenocarpic) and a lot of unmarketable fruit (scarring). Tasty Green and Tasty Jade were intermediate in type between Asian and typical slicers. Tasty Green had much lower fruit set (and fewer marketable fruit) than Tasty Jade. In general, the picklers yielded the most fruit, and mostly marketable fruit, but were susceptible to mites. Beit alpha types have tender smooth skins, which are susceptible to wounding and scarring. Of this type, Katrina and Socrates had higher yields than Diva, but also more mite damage. This type had the highest percentage unmarketable fruit.