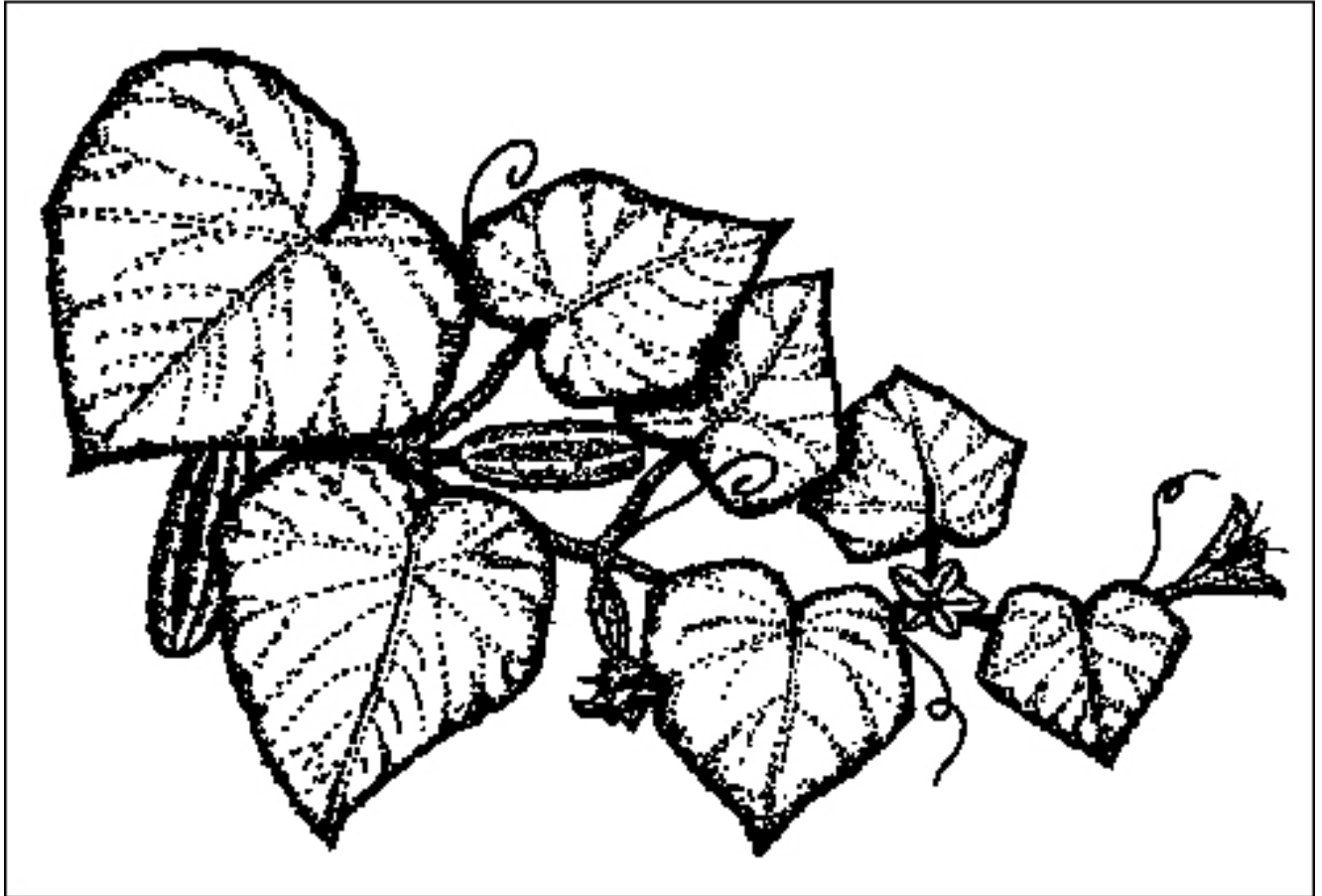


\$25.00

NC State Cucumber Trials 2015



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The authors gratefully acknowledge the assistance of Rodney Mozingo and the personnel at the Horticultural Crops Research Station, Clinton, NC for help in planting, maintaining, and harvesting the trials.

About This Report

The data contained in this publication are made available to interested persons so that they will be informed as to the nature and scope of our cucumber breeding program. Since the results of the trials are based on one year's data, they should be interpreted cautiously. Genotype x environment interactions make it likely that the performance of any given cultigen (cultivar or breeding line) will be significantly different in other trials. Often, cultigens that perform well for yield, earliness, fruit quality, or disease resistance in one trial will perform significantly worse in other trials.

Other factors, known only to the researchers, may complicate the interpretation of the results, making it difficult for others to interpret differences from one year to the next. For example, the effect of seed lot, pollenizer, harvest labor, irrigation, fertilizer, pollinating insects and weather patterns may cause some test plots in the field to receive better or worse treatment than average. Therefore, we urge caution in interpreting these data. Conclusions drawn by the reader will be more accurate if they are of a general nature. For example, note which cultigens performed in the top third for yield, rather than which one was at the very top.

Pricing schemes

Value of production figures were obtained by assigning the following prices for the marketable grades:

Grade	Spring \$/cwt	Summer \$/cwt
No.1 (< 1 1/16")	\$19.30	\$19.30
No.2 (1 1/16 - 1 1/2")	11.05	11.05
No.3 (1 1/2 - 2")	7.75	7.75
No.4 (> 2")	0.00	0.00

The pricing system is the one currently in use in North Carolina (averaged over the spring and summer crops) and is revised annually. The same pricing systems are applied to all production in a particular year even though commercial prices for summer production are usually higher than for spring production.

Yield is presented in cwt/A to make it easy to convert to other useful values. For example, approximation of bu/A can be obtained by taking cwt/A x2, MT/ha by taking cwt/A x 1/10, and t/A by taking cwt/A x 1/20.

Progression of breeding lines through trials:

Stage 1 trial	Stage 2 trial	Stage 3 trial	Stage 4 trial
2 replications	--> 1 replication	--> 3 replications	--> 3 replications
1 harvest	6 harvests	6 harvests	6 harvests
		spring season	summer season

The cost of planning these trials, doing the field work, running the data analysis, and summarizing the results for this report was approximately \$48,000 for the brinestock, pickling and slicing cucumber trials. The report is no longer printed, and is available on the web.

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Pickling Cucumbers

Brinestock Evaluation

Spring (Stage 3) Pickle Trial

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Introduction

Cucumbers from harvests 3, 5 and 7 of the stage 3 spring pickling cucumber trial were each placed in brine tanks at Mt. Olive Pickle Co. The tanks were purged with nitrogen to remove excess carbon dioxide from the brine.

Methods

The cultigens (cultivars and breeding lines) were evaluated for fruit quality (shape, external color, texture, seedcell size, and lot uniformity), firmness, bloaters, and other defects in October. Quality was evaluated by judges from industry: Phil Denlinger and Bob Quinn (Mt. Olive), Curtiss and John Cates (Addis Cates Co.), Donovan Brock (Bay Valley), Laura Kornegay (Nash Produce), and Chris Ware (HM-Clause).

Fruit quality was evaluated using a rating system (that approximated letter grades) from 1 to 9, where 9 = A+, 8 = A, 7 = A-, 6 = B+, 5 = B, 4 = B-, 3 = C, 2 = D, 1 = F. Bloaters and defects were measured as percentage of fruits with damage in a sample of 20 grade 3B fruits. Firmness was measured by punching 10 grade 2B fruits with a Magness-Taylor tester (having a 5/16" diameter tip). All cultigens were randomized, replicated and coded to prevent bias and provide a measure of error variance.

Results

The cultigens are presented in order by decreasing fruit quality in Table 1, and are ranked for resistance to bloaters and defects in Tables 2 and 3, respectively. Fruit texture and firmness rankings are in Table 4. The average quality ratings assigned by each judge in the test are presented in Table 5, showing how lenient each judge was relative to the others. Because of low bloater incidence, the bloater data showed few significant differences among cultigens.

Summary

- The cultigens with best fruit quality in brinestock were NC-Johnston, Puccini, Vlaspiik, and NC-Lexington.
- Most cultigens were bloater and defect resistant; some were susceptible: Expedition.
- As usual, brinestock firmness (from the punch test) was only partially correlated with texture (subjective rating from the judges), so the two traits are measurements of different aspects of cucumber fruit firmness.
- Judges ranged from C.Cates who assigned the highest quality ratings, to G.Pape who assigned the lowest. Analysis of variance indicated significant differences among judges for the way they rated fruit quality. However, interaction of judge with cultigen was non-significant (the judges agreed on which were good cultigens, and which were bad cultigens).

^z Thanks to Mt. Olive Pickle Co., Mt. Olive, N.C. for assistance in brining the cucumbers, and for providing the facilities for evaluating the cultigens tested. Thanks also to the personnel at the Horticultural Crops Research Station, Clinton, N.C. for help in running the field trials.

Table 1. Brinestock evaluation - quality ratings (cultigens are ranked by average quality).²

Rank	Cultivar or line	Seed source	Average quality	Shape	Extrnal color	Text-ure	Seed cell	Uniform-ity
1	NC-Johnston	NC State	5.9	5.7	5.2	6.4	6.1	5.9
2	Puccini	RijkZwaan	5.6	4.8	5.7	6.4	5.3	5.7
3	Vlaspik	Mon-Seminis	5.3	4.1	5.4	6.1	5.8	5.3
4	NC-Lexington	NC State	4.7	4.8	3.6	4.8	4.5	5.7
5	MaxPack	Siegers	4.6	3.9	4.7	5.4	4.9	4.3
6	Expedition	Mon-Seminis	4.6	3.4	5.5	5.0	4.3	4.6
7	Merengue	Mon-Seminis	4.5	3.8	5.0	4.4	4.2	4.8
	Mean		5.0	4.4	5.0	5.5	5.0	5.2
	LSD (5%)		0.4	0.6	0.6	0.6	0.6	0.7

² Quality rated 1 to 9 (9=A+, 8=A, 7=A-, 6=B+, 5=B, 4=B-, 3=C, 2=D, 1=F).
 Correlation (Shape with Uniformity) = 0.85**
 Correlation (Texture with Seedcell) = 0.88**

Table 2. Brinestock evaluation - percentage of fruit damaged by bloaters (cultigens are ranked by balloon bloater resistance).

Rank	Cultivar or line	Seed source	Total bloaters	Balloon	Lens	Honey-comb
1	Puccini	RijkZwaan	0	0	0	0
2	NC-Lexington	NC State	0	0	0	0
3	NC-Johnston	NC State	0	0	0	0
4	MaxPack	Siegers	0	0	0	0
5	Vlaspik	Mon-Seminis	1	0	1	0
6	Merengue	Mon-Seminis	1	1	0	0
7	Expedition	Mon-Seminis	4	2	2	0
	Mean		1	1	0	0
	LSD (5%)		2	NS	NS	NS

Table 3. Brinestock evaluation - percentage of fruit damaged by defects (cultigens are ranked by resistance to defects).

Rank	Cultivar or line	Seed source	Total defects	Placental hollows	Blossom- end defects	Soft centers
1	Puccini	RijkZwaan	1	0	0	1
2	NC-Johnston	NC State	2	1	0	1
3	Merengue	Mon-Seminis	5	2	1	1
4	Expedition	Mon-Seminis	5	3	1	1
5	Vlaspik	Mon-Seminis	5	4	0	1
6	NC-Lexington	NC State	7	0	0	7
7	MaxPack	Siegers	9	3	3	3
	Mean		5	2	1	2
	LSD (5%)		NS	3	NS	4

Table 4. Brinestock evaluation - firmness and texture of fruit, and resistance to bloaters and defects (cultigens are ranked by firmness).²

Rank	Cultivar or line	Seed source	Firm- ness (lb.)	Text- ure	Total bloaters & defects	Total bloaters	Bal- loon	Defects
1	MaxPack	Siegers	21.8	5.4	9	0	0	9
2	NC-Lexington	NC State	20.5	4.8	7	0	0	7
3	NC-Johnston	NC State	20.5	6.4	2	0	0	2
4	Puccini	RijkZwaan	20.5	6.4	1	0	0	1
5	Expedition	Mon-Seminis	20.1	5.0	8	4	2	5
6	Vlaspik	Mon-Seminis	18.5	6.1	6	1	0	5
7	Merengue	Mon-Seminis	11.9	4.4	6	1	1	5
	Mean		19.1	5.5	6	1	1	5
	LSD (5%)		2.5	0.6	5	2	2	6

² Firmness determined by punch-testing (Magness-Taylor) 10 grade 2B fruits.
 Correlation of Texture with: Firmness = 0.42ns, Balloon = -0.31ns
 Correlation of Texture with: Honeycomb = 0.00ns, Soft centers = -0.61**

Table 5. Brinestock evaluation - quality ratings assigned by the judges (judges are ranked by leniency).^z

Rank	Judge	Average quality	Shape	External color	Texture	Seed cell	Uniformity
1	CatesC	6.7	6.9	6.4	7.4	6.3	6.4
2	HearnL	6.3	6.1	5.9	6.7	6.4	6.3
3	DenlingerP	6.0	5.5	5.7	6.0	6.3	6.6
4	WoodliefB	5.0	4.5	4.9	5.7	5.4	4.6
5	CatesJ	4.9	3.3	4.5	5.7	5.2	5.7
6	GrohsR	4.5	3.7	4.6	5.0	4.6	4.7
7	JacksonR	4.5	4.4	5.8	4.1	4.2	3.9
8	QuinnB	4.3	3.3	4.1	4.3	3.6	6.1
9	AndersonH	4.2	2.9	4.3	5.1	4.3	4.2
10	PapeG	3.8	3.0	3.8	5.1	4.0	3.3

^z Quality rated 1 to 9 (9=A+, 8=A, 7=A-, 6=B+, 5=B, 4=B-, 3=C, 2=D, 1=F).

Pickling Cucumbers

Spring Pickling Cucumber Trial 2015

Todd C. Wehner and Emily J. Silverman

Experiment Design

1. A randomized complete block with 3 replications of pickle cultivars and breeding lines (collectively referred to as cultigens) was grown.
2. Plots were single 20 ft. rows with 5 ft. alleys at each end.
3. Rows were on raised 18" beds spaced 60" apart (center to center).
4. Fertilizer consisted of 80-80-80 lb/A (N-P-K) broadcast preplant and 30-0-0 lb/A (N-P-K) sideplaced at the 2 to 4 leaf stage.
5. Curbit was applied preemergence at the rate of 1 lb. a.i./A.
6. The trial was planted 25 April, and harvested 6 times (Mondays and Thursdays) between 12 June and 30 June.

Data Collection

1. Firmness was measured on 3 Grade 3 fruits using a Magness-Taylor tester with a 5/16" tip.
2. Length/Diameter ratio was calculated by measuring 5 Grade 2 fruits.
3. Quality ratings were from 1 to 9, with 1 = worst, 9 = best.
4. Disease ratings were from 0 to 9, with 0 = no disease, 1-2 = trace, 3-4 = slight, 5-6 = moderate, 7-8 = severe, 9 = plant dead.

Results

The following cultigens performed well for yield, earliness, quality and resistance:

1	NC-Johnston	NC State
2	Expedition	Mon-Seminis
3	Vlaspik	Mon-Seminis
4	MaxPack	Siegers

Table 6. Stage 3 spring pickle trial - yield data (cultigens are ranked by fruit value).

Rank	Cultivar or line	Seed source	Value (\$)	Weight (cwt)	Fruit grade distribution (% by weight)					Plants per A (x1000)
					Cull	No.1	No.2	No.3	No.4	
1	NC-Johnston	NC State	2536	304	13	14	22	41	10	4
2	NC-Lexington	NC State	2330	260	9	12	28	47	5	35
3	Vlaspik	Mon-Seminis	2089	220	19	22	24	34	1	35
4	Expedition	Mon-Seminis	2075	275	22	10	27	35	6	26
5	Merengue	Mon-Seminis	1948	229	24	15	35	24	2	35
6	Puccini	RijkZwaan	1820	241	21	10	28	33	8	35
7	MaxPack	Siegers	1584	219	16	7	28	37	13	35
	Mean		2054	250	18	13	27	36	6	29
	LSD (5%)		455	62	5	7	11	13	8	6

Correlation (Fruit value with fruit weight) = 0.78**

Table 7. Stage 3 spring pickle trial - earliness data (cultigens are ranked by fruit value in harvests 1 and 2).

Rank	Cultivar or line	Seed source	Cumulative fruit value and % of total value ^z (8 harvests) for harvest:									
			1		1-2		1-3		1-4		1-5	
			\$/A	%	\$/A	%	\$/A	%	\$/A	%	\$/A	%
1	Expedition	Mon-Seminis	226	12	883	43	1019	50	1213	59	1701	82
2	MaxPack	Siegers	250	16	666	42	811	51	929	59	1160	73
3	NC-Johnston	NC State	187	7	600	23	852	33	1219	48	1903	73
4	Vlaspik	Mon-Seminis	354	17	558	27	558	27	679	32	1405	67
5	Puccini	RijkZwaan	325	18	500	27	696	38	918	50	1217	67
6	NC-Lexington	NC State	168	7	465	20	824	35	994	43	1771	76
7	Merengue	Mon-Seminis	313	16	458	23	721	37	915	47	1351	69
	Mean		260	13	590	29	783	39	981	48	1501	72
	LSD (5%)		271	13	293	11	296	11	352	13	499	9

Correlation (Fruit value with value in harvests 1 and 2) = 0.11^{ns}Correlation (Fruit value with % in harvests 1 and 2) = 0.37^{ns}

Table 8. Stage 3 spring pickle trial - fruit quality data (cultigens are ranked by average quality).

Rank	Cultivar or line	Seed source	Average quality ^z	Shape ^z	Color ^y	Seed- cell ^z	Overall impres- sion ^z
1	NC-Johnston	NC State	7.2	7.7	7.0	6.7	7.3
2	MaxPack	Siegers	7.1	7.7	8.0	6.3	7.3
3	Expedition	Mon-Seminis	6.8	7.0	7.0	6.0	7.3
4	Vlaspik	Mon-Seminis	6.6	7.3	5.7	5.3	7.0
5	Puccini	RijkZwaan	6.0	6.3	6.7	5.3	6.3
6	Merengue	Mon-Seminis	5.3	6.7	4.7	3.3	6.0
7	NC-Lexington	NC State	4.3	4.7	3.3	3.7	4.7
	Mean		6.2	6.8	6.0	5.2	6.6
	LSD (5%)		0.9	1.6	1.7	1.5	1.1

^z Quality rated 1 to 9 (1 = poor, 5 = average, 9 = excellent).

^y Color rated 1 to 9 (1 = white, 5 = medium green, 9 = very dark green).

Correlation (Fruit value with average quality) = -0.14^{ns}

Table 9. Stage 3 spring pickle trial - other quality data (cultigens are ranked by average quality).^z

Rank	Cultivar or line	Seed source	Firm- ness	L/D ratio	Defects1 ^o			Defects2 ^o		
					2	4	6	2	4	6
1	MaxPack	Siegers	19	3.0	D	K	K	M	H	H
2	NC-Johnston	NC State	17	3.3	K	T	K	G	W	G
3	Expedition	Mon-Seminis	17	3.4	G	G	D	D	K	G
4	NC-Lexington	NC State	17	3.0	W	W	H	H	H	W
5	Puccini	RijkZwaan	17	2.6	K	H	H	A	V	W
6	Vlaspik	Mon-Seminis	15	3.5	K	K	K	W	W	G
7	Merengue	Mon-Seminis	13	3.5	A	A	D	U	D	A
	Mean		16	3.2						
	LSD (5%)		2	0.6						

^z Quality rated 1 to 9 (1 = poor, 5 = average, 9 = excellent).

Defects were rated as follows (giving primary and secondary for each harvest):

A - wArty fruit	J - RiDGed	S - Separated carpels
B - Blossom end defects	K - Keep(excellent)	T - Tapered ends
C - Crooks excessive	L - Late maturity	U - Uniform green
D - Dogbone shape	M - Mottled fruit	V - Varicolor (dark stem end, light blossom end)
E - Early maturity	N - Nubs excessive	W - White fruit
F - Four celled	O - Offtype fruit	X - neCKS on fruit
G - lonG fruit	P - Placental hollows	Y - Yellow fruit
H - sHort fruit	Q -	Z - diSeased fruit
I - strIPed fruit	R - Reject (poor)	

Table 10. Stage 3 spring pickle trial - sex expression and vine data (cultigens are ranked by gynoecious rating).

Rank	Cultivar or line	Seed source	Gyn. rating ^z	Vine size ^y	Vine color ^x
1	Merengue	Mon-Seminis	9	8	7
2	Puccini	RijkZwaan	9	7	6
3	NC-Johnston	NC State	9	7	6
4	Vlaspik	Mon-Seminis	8	7	7
5	Expedition	Mon-Seminis	8	7	4
6	MaxPack	Siegers	6	8	7
7	NC-Lexington	NC State	3	7	5
	Mean		7	7	6
	LSD (5%)		1	1	2

^z Gynoecious rating (1 = androecious, 2-3 = andromonoecious, 4-6 = monoecious, 7-8 = predominately gynoecious, 9 = gynoecious).

^y Size rated 1 to 9 (1=very small, 9=very large).

^x Color rated 1 to 9 (1=yellow, 9=very dark green).

Correlation (Yield w/ gynoecious rating) = -0.14^{ns} ; (Yield w/ vine size) = -0.08^{ns}

Table 11. Stage 3 spring pickle trial - disease data (cultigens are ranked by average disease resistance).^z

Rank	Cultivar or line	Seed source	Downy mildew
1	NC-Johnston	NC State	2.0
2	NC-Lexington	NC State	2.3
3	Merengue	Mon-Seminis	3.0
4	Vlaspik	Mon-Seminis	3.0
5	Expedition	Mon-Seminis	4.0
6	MaxPack	Siegers	4.3
7	Puccini	RijkZwaan	4.7
	Mean		3.3
	LSD (5%)		2.6

^z Disease rated 0 to 9 (0=none, 1-2=trace, 3-4=slight, 5-6=moderate, 7-8=advanced, 9=plant dead).

Correlation (Yield vs. disease rating) = -0.58^{ns}

Table 12. Stage 3 spring pickle trial - selection indexes (cultigens ranked by SWI1).^z

Rank	Cultivar or line	Seed source	Simple weighted indexes		Average rank indexes	
			SWI1	SWI2	ARI1	ARI2
1	NC-Johnston	NC State	9.4	7.9	2.6	2.7
2	Expedition	Mon-Seminis	9.1	7.5	3.1	3.1
3	Vlaspik	Mon-Seminis	7.9	6.7	3.5	4.1
4	MaxPack	Siegers	7.7	6.5	3.8	3.8
5	NC-Lexington	NC State	7.5	6.3	5.1	4.6
6	Merengue	Mon-Seminis	7.1	6.1	4.9	5.0
7	Puccini	RijkZwaan	7.0	6.0	5.0	4.7
	Mean		8.0	6.7	4.0	4.0
	LSD (5%)		1.8	1.3	1.4	1.3

^z SWI is simple weighted index calculated from the performance of a cultigen for yield; earliness; fruit shape, seedcell size and overall impression; and disease resistance. The index is calculated with 2 different methods of weighting each trait (10 is best, 1 is worst).

ARI is the average ranking of each cultigen for yield, earliness, fruit quality and disease resistance. The index is calculated with 2 different sets of secondary traits added in with the primary traits (1 is best).

Correlation (Yield with SWI1) = 0.65** Correlation (Yield with ARI1) = -0.38*

Slicing Cucumbers

Spring Slicing Cucumber Trial 2015

Todd C. Wehner and Emily J. Silverman

Experiment Design

1. A randomized complete block with 3 replications of slicer cultivars and breeding lines (collectively referred to as cultigens) was grown.
2. Plots were single 20 ft. rows with 5 ft. alleys at each end.
3. Rows were on raised 18" beds spaced 60" apart (center to center).
4. Fertilizer consisted of 80-80-80 lb/A (N-P-K) broadcast preplant and 30-0-0 lb/A (N-P-K) sideplaced at the 2 to 4 leaf stage.
5. Curbit was applied preemergence at the rate of 1 lb. a.i./A.
6. The trial was planted 25 April, and harvested 6 times (Mondays and Thursdays) between 16 June and 3 July.

Data Collection

1. Fruits were weighed after sorting into No.1, No.2 and cull (nubs and crooks) grades according to U.S.D.A. standards.
2. Fruit length, diameter and weight were recorded for 3 fruit per plot.
3. Quality ratings were from 1 to 9, with 1 = worst, 9 = best.
4. Disease ratings were from 0 to 9, with 0 = no disease, 1-2 = trace, 3-4 = slight, 5-6 = moderate, 7-8 = severe, 9 = plant dead.

Results

The following cultigens performed well for yield, earliness, quality and resistance:

1	Intimidator	Mon-Seminis
2	Thunder	Mon-Seminis
3	USACX-10428	USAgriSeeds
4	Dasher II	Mon-Seminis

Table 13. Stage 3 spring slicer trial - yield data (cultigens ranked by cwt/A of Fancy + No. 1 grade fruit).

Rank	Cultivar or line	Seed source	Yield(cwt/A)		Percent		Plants per A (x1000)
			Fancy +No.1	Market- able	fancy +No.1	Percent culls	
1	Dasher II	Mon-Seminis	102	152	54	20	25
2	Thunder	Mon-Seminis	92	155	42	27	25
3	Intimidator	Mon-Seminis	91	131	51	26	6
4	USACX-10428	USAgriSeeds	63	103	42	30	28
5	Mongoose	Siegers	59	91	47	28	30
6	USACX-10429	USAgriSeeds	36	79	30	34	30
	Mean		74	119	44	27	24
	LSD (5%)		24	27	15	13	3

Correlation (Marketable yield with % culls) = -0.55*

Table 14. Stage 3 spring slicer trial - earliness data (cultigens ranked by weight of Fancy + No.1 grade fruit in harvests 1 and 2).

Rank	Cultivar or line	Seed source	Cumulative fruit weight and % of total weight (6 harvests) for harvest:									
			1		1-2		1-3		1-4		1-5	
			Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%
1	Dasher II	Mon-Seminis	44	26	49	29	93	57	105	65	121	78
2	Thunder	Mon-Seminis	15	9	39	24	107	67	114	71	139	89
3	Intimidator	Mon-Seminis	8	6	39	30	58	45	76	59	112	85
4	USACX-10428	USAgriSeeds	5	4	21	20	63	59	69	65	85	82
5	USACX-10429	USAgriSeeds	15	22	19	26	47	57	52	63	62	76
6	Mongoose	Siegers	6	6	11	12	59	65	66	73	76	83
	Mean		16	12	30	24	71	58	80	66	99	82
	LSD (5%)		42	28	45	31	46	28	42	26	29	13

Correlation (Marketable yield with yield in harvests 1-2) = 0.70**

Correlation (Marketable yield with % of yield in harvests 1-2) = 0.37^{ns}

Table 15. Stage 3 spring slicer trial - fruit quality data (cultigens ranked by average quality).^z

Rank	Cultivar or line	Seed source	Average quality	Shape	Color	Seed-cell	Overall impression
1	Intimidator	Mon-Seminis	7.8	8	8	7	8
2	USACX-10429	USAgriSeeds	7.1	6	7	8	7
3	USACX-10428	USAgriSeeds	7.0	7	7	7	7
4	Mongoose	Siegers	6.8	6	7	7	7
5	Thunder	Mon-Seminis	6.4	7	6	6	7
6	Dasher II	Mon-Seminis	6.4	6	5	7	6
	Mean		6.9	7	7	7	7
	LSD (5%)		0.8	1	1	1	1

^z Quality rated 1 to 9 (1 = poor, 5 = average, 9 = excellent; except color where 1 = white, 5 = medium green, 9 = very dark green). Correlation (Marketable yield with average quality) = -0.14^{ns}

Table 16. Stage 3 spring slicer trial - fruit dimensions and comments (cultigens ranked by average quality rating).^z

Rank	Cultivar or line	Seed source	Length (inch)	Diameter (inch)	Wt. (lb.)	Defect 1°			Defect 2°		
						2	4	6	2	4	6
1	Intimidator	Mon-Seminis	8.0	1.9	0.72	K	K	K	G	G	D
2	USACX-10429	USAgriSeeds	7.6	1.9	0.61	C	T	T	T	K	K
3	USACX-10428	USAgriSeeds	7.6	1.9	0.59	K	H	T	T	G	K
4	Mongoose	Siegers	7.2	1.9	0.55	T	T	C	D	K	T
5	Thunder	Mon-Seminis	7.6	1.9	0.58	K	H	T	T	K	G
6	Dasher II	Mon-Seminis	7.4	1.9	0.55	H	T	T	Y	K	M
	Mean		7.6	1.9	0.60						
	LSD (5%)		0.9	0.3	0.21						

^z Defects were rated as follows (giving primary and secondary for each harvest):

A - wArty fruit	J - RiDGed	S - Separated carpels
B - Blossom end defects	K - Keep(excellent)	T - Tapered ends
C - Crooks excessive	L - Late maturity	U - Uniform green
D - Dogbone shape	M - Mottled fruit	V - Varicolor (dark stem end, light blossom end)
E - Early maturity	N - Nubs excessive	W - White fruit
F - Four celled	O - Offtype fruit	X - neCKS on fruit
G - lonG fruit	P - Placental hollows	Y - Yellow fruit
H - sHort fruit	Q -	Z - diSeased fruit
I - strIpEd fruit	R - Reject (poor)	

Table 17. Stage 3 spring slicer trial - sex expression and vine data (cultigens ranked by gynoecious rating).

Rank	Cultivar or line	Seed source	Gyn. rating ^z	Early yield (cwt/A)	Earliness (%) ^x	Vine size ^w	Vine color ^w
1	Thunder	Mon-Seminis	8	39	24	7	4
2	Dasher II	Mon-Seminis	8	49	29	7	6
3	Mongoose	Siegers	8	11	12	6	6
4	USACX-10428	USAgriSeeds	7	21	20	6	6
5	USACX-10429	USAgriSeeds	6	19	26	7	7
6	Intimidator	Mon-Seminis	6	39	30	6	4
	Mean		7	30	24	6	6
	LSD (5%)		3	45	31	2	3

^z Gynoecious rating (1 = androecious, 2-3 = andromonoecious, 4-6 = monoecious, 7-8 = predominately gynoecious, 9 = gynoecious).

^y Early yield is weight of Fancy+No.1 grade fruit produced in harvests 1 and 2.

^x Earliness is the percent of the yield (Fancy + No.1 grade fruit) of 6 harvests that was produced in harvests 1 and 2.

^w Vine size & color are rated 1 (small or yellow green) to 9 (large or dark green)
Correlation (Marketable yield with gynoecious rating) = 0.09^{ns}

Table 18. Stage 3 spring slicer trial - disease ratings (cultigens ranked by average disease resistance).^z

Rank	Cultivar or line	Seed source	Downy mildew
1	Thunder	Mon-Seminis	3.3
2	Intimidator	Mon-Seminis	3.3
3	Dasher II	Mon-Seminis	3.7
4	USACX-10428	USAgriSeeds	3.7
5	Mongoose	Siegers	4.3
6	USACX-10429	USAgriSeeds	4.7
	Mean		3.8
	LSD (5%)		2.8

^z Disease rated 0 to 9 (0=none, 1-2=trace, 3-4=slight, 5-6=moderate, 7-8=advanced, 9=plant dead).

Correlation (Marketable yield with disease rating) = -0.46*

Table 19. Stage 3 spring slicer trial - selection indexes (cultigens ranked by SWI1).^z

Rank	Cultivar or line	Seed source	Simple weighted indexes		Average rank indexes	
			SWI1	SWI2	ARI1	ARI2
1	Intimidator	Mon-Seminis	4.6	5.1	2.2	2.4
2	Thunder	Mon-Seminis	4.2	4.5	3.5	3.1
3	USACX-10428	USAgriSeeds	4.1	4.4	3.5	3.6
4	Dasher II	Mon-Seminis	4.1	4.5	3.6	3.3
5	Mongoose	Siegers	3.8	4.0	4.2	4.3
6	USACX-10429	USAgriSeeds	3.7	4.2	4.1	4.3
	Mean		4.1	4.4	3.5	3.5
	LSD (5%)		0.7	0.9	1.1	1.2

^z SWI is simple weighted index calculated from the performance of a cultigen for yield; earliness; fruit shape, seedcell size and overall impression; and disease resistance. The index is calculated with 2 different methods of weighting each trait (10 is best, 1 is worst).

ARI is the average ranking of each cultigen for yield, earliness, fruit quality and disease resistance. The index is calculated with 2 different sets of secondary traits added in with the primary traits (1 is best).

Correlation (Marketable yield with SWI1) = 0.60**

Correlation (Marketable yield with ARI1) = -0.35^{ns}