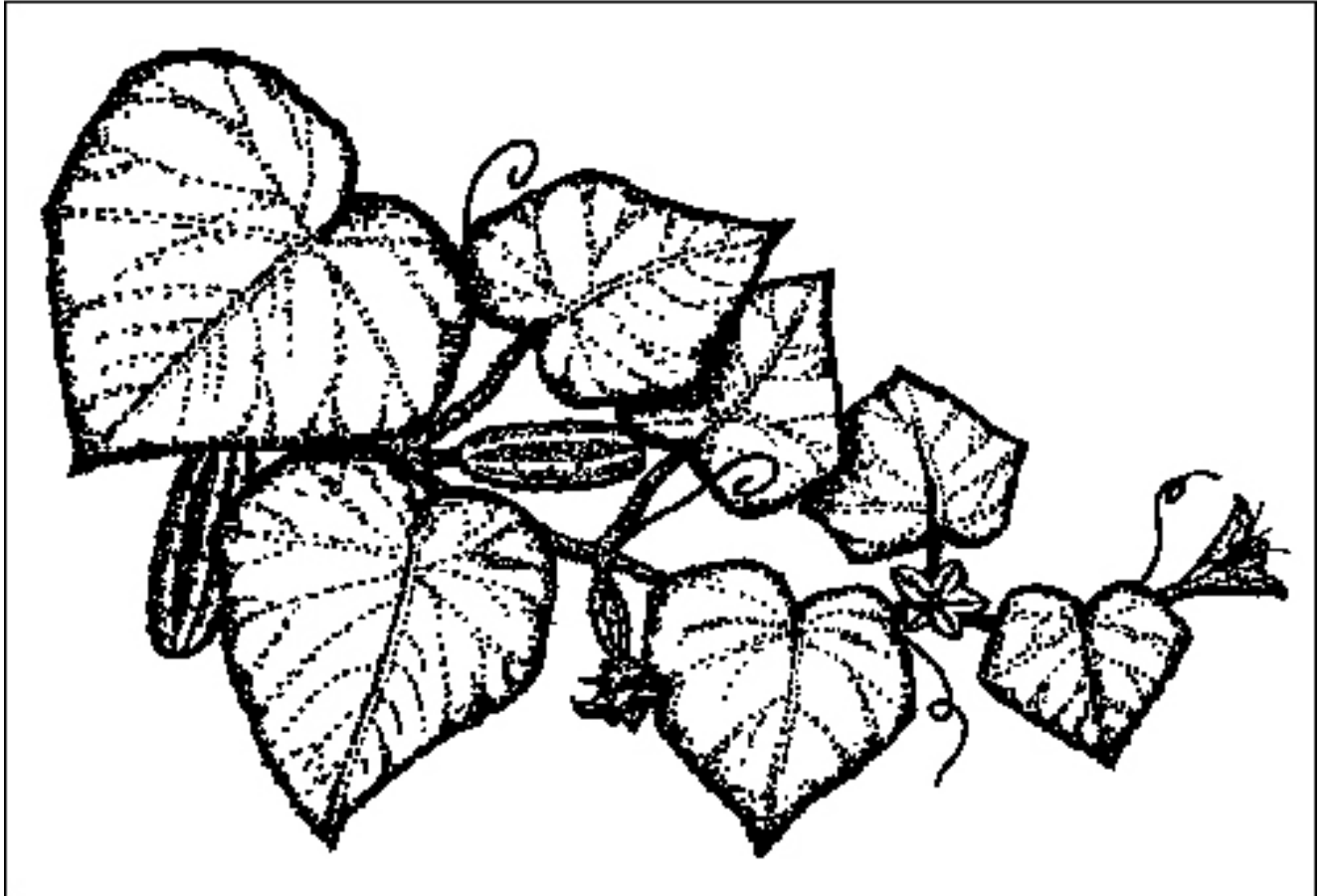


\$25.00

NC State Cucumber Trials 2014



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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 Supremo, Vlasplik, USACX-214, Lafayette, Xtreme and USACX-224.
- Most cultigens were bloater and defect resistant; some were susceptible: Feisty and USACX-224.
- 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 Kornegay who assigned the highest quality ratings, to C.Cates 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).

² 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	SX-87	Siegers	6.0	6.4	6.8	5.1	5.3	6.2
2	Excursion	Mon-Seminis	5.9	5.4	6.2	5.9	6.2	5.8
3	Supremo	USAgriSeeds	5.8	5.9	6.2	5.6	5.6	5.9
4	Vlaspik	Mon-Seminis	5.8	5.6	5.8	5.6	5.8	6.3
5	Xtreme	USAgriSeeds	5.8	5.8	6.0	5.5	5.4	6.0
6	Expedition	Mon-Seminis	5.5	5.5	6.0	5.2	5.4	5.7
	Mean		5.8	5.8	6.2	5.5	5.6	6.0
	LSD (5%)		0.4	0.6	0.5	0.7	0.6	0.6

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) = 0.80**
 Correlation (Texture with Seedcell) = 0.86**

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	Supremo	USAgriSeeds	0	0	0	0
2	Excursion	Mon-Seminis	2	1	1	0
3	Vlaspik	Mon-Seminis	2	1	1	0
4	SX-87	Siegers	2	2	0	0
5	Xtreme	USAgriSeeds	4	4	0	0
6	Expedition	Mon-Seminis	5	5	0	0
	Mean		2	2	0	0
	LSD (5%)		7	7	1	0

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	Excursion	Mon-Seminis	1	1	0	0
2	Vlaspik	Mon-Seminis	2	0	0	2
3	Supremo	USAgriSeeds	3	2	0	2
4	Expedition	Mon-Seminis	6	4	0	1
5	SX-87	Siegers	7	1	1	5
6	Xtreme	USAgriSeeds	9	7	0	2
	Mean		5	2	0	2
	LSD (5%)		9	7	1	5

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	Firmness (lb.)	Texture	Total bloaters & defects	Total bloaters	Balloon	Defects
1	Xtreme	USAgriSeeds	19.0	5.5	13	4	4	9
2	SX-87	Siegers	18.7	5.1	9	2	2	7
3	Excursion	Mon-Seminis	18.3	5.9	3	2	1	1
4	Vlaspik	Mon-Seminis	18.0	5.6	3	2	1	2
5	Expedition	Mon-Seminis	17.7	5.2	11	5	5	6
6	Supremo	USAgriSeeds	17.1	5.6	3	0	0	3
	Mean		18.1	5.5	7	2	2	5
	LSD (5%)		2.9	0.7	12	7	7	9

² Firmness determined by punch-testing (Magness-Taylor) 10 grade 2B fruits.
 Correlation of Texture with: Firmness = 0.34ns, Balloon = -0.10ns
 Correlation of Texture with: Honeycomb = 0.00ns, Soft centers = -0.06ns

Table 5. Brinestock evaluation - quality ratings assigned by the judges (judges are ranked by leniency).²

Rank	Judge	Average quality	Shape	External color	Texture	Seed cell	Uniformity
1	CatesC	6.7	6.6	6.7	7.0	6.2	6.8
2	CoffeyS	6.6	7.0	6.7	6.6	6.2	6.6
3	DenlingerP	6.6	6.2	7.4	5.7	6.7	7.1
4	HearnL	6.3	6.4	6.4	6.1	6.3	6.3
5	McCammonK	6.1	6.3	7.2	5.3	5.8	6.1
6	CatesJ	5.9	5.7	6.2	5.1	5.9	6.4
7	Schultheis	5.4	5.4	5.7	4.3	5.1	6.3
8	QuinnB	5.3	5.2	5.8	4.7	4.3	6.5
9	PapeG	4.6	4.4	5.1	5.1	4.9	3.7
10	GrohsR	4.6	4.6	4.6	4.9	4.8	4.2

² 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 2014

Todd C. Wehner and Briana E. Boaz

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	Expedition	Mon-Seminis
2	SX-87	Siegers
3	Vlaspik	Mon-Seminis
4	Excursion	Mon-Seminis
5	Xtreme	USAgriSeeds
6	Supremo	USAgriSeeds

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	Excursion	Mon-Seminis	2160	269	16	9	30	37	8	30
2	Vlaspik	Mon-Seminis	2127	278	18	7	29	42	4	27
3	SX-87	Siegers	2044	248	11	8	31	43	7	26
4	Expedition	Mon-Seminis	2018	234	17	11	38	30	4	30
5	Xtreme	USAgriSeeds	1790	218	15	8	33	39	4	30
6	Supremo	USAgriSeeds	1562	201	12	7	29	40	11	30
	Mean		1950	241	15	8	32	39	6	29
	LSD (5%)		1064	131	6	3	11	11	6	7

Correlation (Fruit value with fruit weight) = 0.94**

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 ² (8 harvests) for harvest:									
			1		1-2		1-3		1-4		1-5	
			\$/A	%	\$/A	%	\$/A	%	\$/A	%	\$/A	%
1	Expedition	Mon-Seminis	439	22	769	38	1054	52	1319	65	1614	80
2	Excursion	Mon-Seminis	340	17	678	32	1026	48	1399	65	1718	81
3	Vlaspik	Mon-Seminis	268	12	666	30	898	41	1355	64	1667	78
4	SX-87	Siegers	189	10	629	32	891	45	1381	69	1637	82
5	Supremo	USAgriSeeds	128	7	487	30	683	43	1049	67	1305	84
6	Xtreme	USAgriSeeds	116	7	454	27	711	42	1062	60	1375	78
	Mean		247	12	614	31	877	45	1261	65	1553	80
	LSD (5%)		260	11	428	14	543	18	616	11	724	12

Correlation (Fruit value with value in harvests 1 and 2) = 0.71**

Correlation (Fruit value with % in harvests 1 and 2) = 0.00ns

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 impression ^z
1	SX-87	Siegers	7.3	7.7	8.3	6.7	7.7
2	Xtreme	USAgriSeeds	7.0	8.0	8.0	5.3	7.7
3	Supremo	USAgriSeeds	7.0	7.0	8.3	7.0	7.0
4	Expedition	Mon-Seminis	6.9	7.0	6.0	6.7	7.0
5	Vlaspik	Mon-Seminis	6.8	7.0	5.7	7.0	6.3
6	Excursion	Mon-Seminis	6.6	6.3	6.7	6.3	7.0
	Mean		6.9	7.2	7.2	6.5	7.1
	LSD (5%)		0.8	1.3	1.2	1.2	0.9

^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) = -0.16^{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	SX-87	Siegers	19	3.2	K	M	K	K	D	H
2	Supremo	USAgriSeeds	19	3.2	K	G	H	H	K	K
3	Xtreme	USAgriSeeds	18	3.3	K	K	K	K	G	H
4	Vlaspik	Mon-Seminis	18	3.7	G	K	M	T	M	G
5	Expedition	Mon-Seminis	17	3.6	K	G	M	G	T	G
6	Excursion	Mon-Seminis	15	3.8	G	G	T	T	K	G
	Mean		18	3.5						
	LSD (5%)		3	0.2						

^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	Expedition	Mon-Seminis	8	7	7
2	Vlaspik	Mon-Seminis	8	6	6
3	Excursion	Mon-Seminis	7	6	6
4	SX-87	Siegers	5	6	9
5	Supremo	USAgriSeeds	4	7	8
6	Xtreme	USAgriSeeds	4	6	9
	Mean		6	6	7
	LSD (5%)		2	2	3

^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) = 0.32ns; (Yield w/ vine size) = 0.37ns

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	Vlaspik	Mon-Seminis	5.0
2	SX-87	Siegers	5.0
3	Expedition	Mon-Seminis	5.7
4	Excursion	Mon-Seminis	6.0
5	Supremo	USAgriSeeds	6.0
6	Xtreme	USAgriSeeds	6.0
	Mean		5.6
	LSD (5%)		1.0

^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) = -0.13ns

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	Expedition	Mon-Seminis	8.8	7.1	3.2	3.2
2	SX-87	Siegers	8.8	7.3	2.6	2.5
3	Vlaspik	Mon-Seminis	8.7	7.2	3.5	3.4
4	Excursion	Mon-Seminis	8.6	7.1	3.9	4.0
5	Xtreme	USAgriSeeds	7.6	6.4	3.8	4.0
6	Supremo	USAgriSeeds	7.3	6.2	4.0	3.9
	Mean		8.3	6.9	3.5	3.5
	LSD (5%)		3.0	2.1	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) = 0.93** Correlation (Yield with ARI1) = -0.54**

Slicing Cucumbers

Spring Slicing Cucumber Trial 2014

Todd C. Wehner and Briana E. Boaz

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	Mongoose	Siegers
2	Dominator	Siegers
3	Intimidator	Mon-Seminis
4	Dasher II	Mon-Seminis
5	Thunder	Mon-Seminis
6	Cobra	USAgriSeeds

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	Mongoose	Siegers	332	560	54	9	30
2	Dasher II	Mon-Seminis	307	471	60	9	17
3	Intimidator	Mon-Seminis	291	472	55	11	23
4	Dominator	Siegers	282	489	50	14	30
5	Cobra	USAgriSeeds	267	446	51	14	26
6	USACR 10429	USAgriSeeds	257	479	47	14	15
7	Thunder	Mon-Seminis	240	412	50	15	15
8	Superior	USAgriSeeds	228	358	56	13	18
9	USACR 10428	USAgriSeeds	209	356	52	14	7
	Mean		268	449	53	12	20
	LSD (5%)		66	137	11	5	12

Correlation (Marketable yield with % culls) = -0.43*

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	Intimidator	Mon-Seminis	181	38	221	47	293	62	397	84	443	94
2	Dominator	Siegers	150	30	200	40	339	69	410	83	442	90
3	Mongoose	Siegers	145	26	193	35	302	54	357	64	474	84
4	Thunder	Mon-Seminis	132	31	179	43	233	57	344	84	382	93
5	Dasher II	Mon-Seminis	105	22	167	34	266	56	372	78	420	89
6	USACR 10428	USAgriSeeds	77	22	117	33	209	60	264	75	311	88
7	USACR 10429	USAgriSeeds	40	9	109	25	309	64	373	77	431	90
8	Cobra	USAgriSeeds	52	11	105	23	266	58	334	73	393	88
9	Superior	USAgriSeeds	50	14	97	27	198	55	268	75	317	89
	Mean		104	23	154	34	268	59	347	77	401	89
	LSD (5%)		77	15	93	19	105	12	118	11	126	6

Correlation (Marketable yield with yield in harvests 1-2) = 0.50**

Correlation (Marketable yield with % of yield in harvests 1-2) = 0.08ns

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	USACR 10429	USAgriSeeds	7.6	8	9	7	8
2	Cobra	USAgriSeeds	7.6	8	8	7	8
3	Superior	USAgriSeeds	7.6	7	9	8	8
4	Mongoose	Siegers	7.4	7	8	8	7
5	Dominator	Siegers	7.3	7	7	8	7
6	Thunder	Mon-Seminis	7.0	7	8	6	7
7	Dasher II	Mon-Seminis	6.9	8	8	6	7
8	Intimidator	Mon-Seminis	6.9	7	7	7	7
9	USACR 10428	USAgriSeeds	6.9	7	9	7	7
	Mean		7.2	7	8	7	7
	LSD (5%)		1.0	2	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) = 0.26ns

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	USACR 10429	USAgriSeeds	9.5	2.2	1.01	K	K	G	T	G	K
2	Cobra	USAgriSeeds	9.0	2.2	0.98	K	D	K	G	O	G
3	Superior	USAgriSeeds	9.0	2.1	0.97	K	D	D	T	K	M
4	Mongoose	Siegers	9.3	2.1	0.99	T	M	K	K	K	H
5	Dominator	Siegers	8.7	2.1	1.00	H	K	K	C	Y	G
6	Thunder	Mon-Seminis	9.4	2.2	1.06	T	K	G	M	C	K
7	Dasher II	Mon-Seminis	9.1	2.1	0.86	K	T	T	T	Y	G
8	Intimidator	Mon-Seminis	9.3	2.1	0.96	M	Y	G	H	G	K
9	USACR 10428	USAgriSeeds	9.5	2.1	0.96	C	T	G	K	O	K
	Mean		9.2	2.2	0.97						
	LSD (5%)		0.6	0.1	0.20						

^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	Superior	USAgriSeeds	9	97	27	7	8
2	Mongoose	Siegers	9	193	35	9	7
3	Thunder	Mon-Seminis	9	179	43	7	7
4	Intimidator	Mon-Seminis	8	221	47	8	6
5	USACR 10429	USAgriSeeds	8	109	25	7	9
6	Cobra	USAgriSeeds	8	105	23	7	7
7	Dominator	Siegers	7	200	40	9	7
8	Dasher II	Mon-Seminis	7	167	34	7	9
9	USACR 10428	USAgriSeeds	7	117	33	6	8
	Mean		8	154	34	7	8
	LSD (5%)		1	93	19	2	1

^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) = 0.30ns

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	Dominator	Siegers	5.3
2	Superior	USAgriSeeds	5.7
3	Intimidator	Mon-Seminis	6.0
4	USACR 10429	USAgriSeeds	6.0
5	Dasher II	Mon-Seminis	6.0
6	Mongoose	Siegers	6.3
7	Thunder	Mon-Seminis	6.3
8	Cobra	USAgriSeeds	6.3
9	USACR 10428	USAgriSeeds	6.7
	Mean		6.1
	LSD (5%)		1.1

^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) = 0.29ns

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	Mongoose	Siegers	5.5	5.8	4.1	4.2
2	Dominator	Siegers	5.5	5.9	3.7	3.6
3	Intimidator	Mon-Seminis	5.3	5.8	4.7	4.4
4	Dasher II	Mon-Seminis	5.2	5.6	5.3	5.1
5	USACR 10429	USAgriSeeds	5.1	5.4	4.6	4.6
6	Thunder	Mon-Seminis	5.0	5.4	5.4	5.4
7	Cobra	USAgriSeeds	5.0	5.2	5.3	5.7
8	Superior	USAgriSeeds	4.9	5.2	5.2	5.6
9	USACR 10428	USAgriSeeds	4.5	4.9	6.7	6.6
	Mean		5.1	5.5	5.0	5.0
	LSD (5%)		0.8	0.8	2.0	1.9

^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) = 0.69**

Correlation (Marketable yield with ARI1) = -0.56**