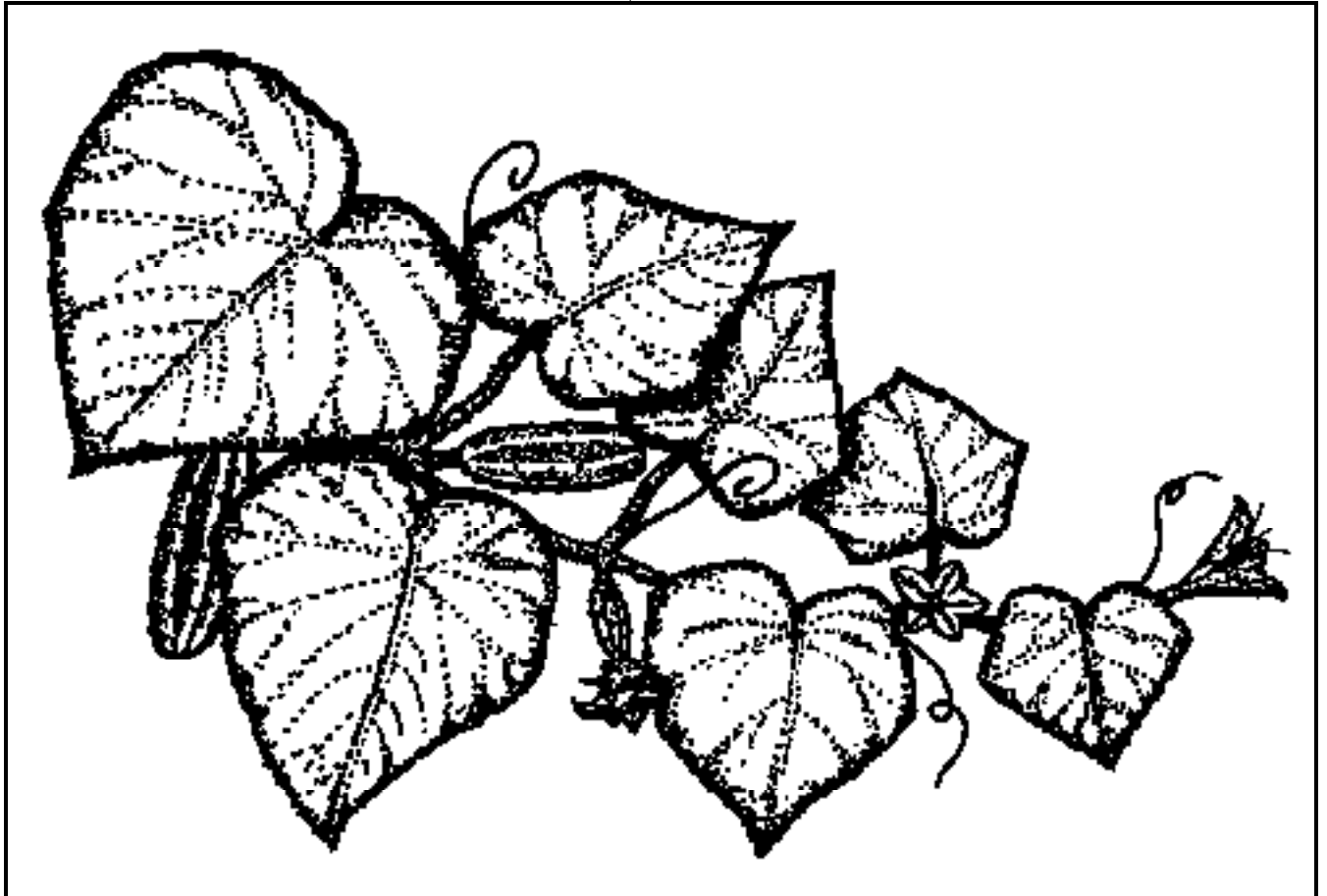


\$5.00

NC State Cucumber Trials 2010



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The authors gratefully acknowledge the assistance of Robbie Brogden 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. Printing and binding charges were approximately \$3.00 per report.

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Pickling Cucumbers

Brinestock Evaluation

Spring (Stage 3) Pickle Trial

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Introduction

Cucumbers from harvests 1, 3 and 5 of the stage 3 spring pickling cucumber trial were each placed in one brine tank 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, Henry Woods, and Bob Quinn (Mt. Olive), Darrell Hawley and Ricky Jackson (Bay Valley), John Cates (Addis Cates Co.), Steve Apol (Toisnot), Laura Kornegay (Nash Produce), and Ken McCammom (Bejo).

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-Duplin, Vlasstar, NC-Danbury, Exp08-7878, Vlaspick, EGP-410, Exp08-7612, McPick, Johnston, Starex, Feisty(9464), and Cross Country.
- Most cultigens were bloater resistant; several were susceptible: NC-Moriah, Exp08-7612, and NC-Denton.
- The firmest cultigens were Sumter, Europick, EGP-410, Exp08-7814, NC-Danbury, Exp08-7878, Treasure, LB 17, Exp08-7612, Vlasstar, and NC-Lexington.
- 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 Denlinger who assigned the highest quality ratings, to Jackson 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).^z

Rank	Cultivar or line	Seed source	Average quality	Shape	Extrnal color	Text- ure	Seed cell	Uniform- ity
1	Vlasstar	Seminis	5.9	5.6	6.1	6.1	5.7	5.7
2	Exp08-7814	Bejo Seeds	5.8	5.2	6.3	5.8	6.1	5.7
3	PCX-112	Baker Seeds	5.7	5.8	6.2	5.1	5.2	6.3
4	NC-Duplin	NCStateUniv.	5.6	5.6	5.9	5.1	5.1	6.3
5	NC-Danbury	NCStateUniv.	5.6	5.7	5.7	5.6	5.4	5.6
6	Exp08-7633	Bejo Seeds	5.5	5.3	5.9	5.6	5.4	5.6
7	CrossCountry	Harris Moran	5.5	5.4	5.9	5.6	5.3	5.6
8	Exp09-2873	Bejo Seeds	5.5	5.3	5.9	5.6	5.4	5.4
9	Johnston	NCStateUniv.	5.5	4.9	6.1	5.7	5.3	5.7
10	Exp09-2420	Bejo Seeds	5.5	5.1	6.1	5.4	5.6	5.5
11	Exp09-2431	Bejo Seeds	5.4	5.4	5.4	5.3	5.4	5.7
12	NC-Davie	ZeraimGedera	5.4	5.4	5.8	5.1	5.1	5.7
13	Vlaspik	Seminis	5.3	5.1	5.5	5.5	5.0	5.6
14	Sumter	ClemsonUniv.	5.3	5.1	4.3	5.9	5.9	5.5
15	NC-Denton	NCStateUniv.	5.3	5.4	5.7	4.9	4.7	5.6
16	Feisty(9464)	Harris Moran	5.2	4.9	5.5	5.1	5.0	5.3
17	NC-Longhurst	NCStateUniv.	5.2	5.0	5.8	4.5	4.6	6.0
18	Raleigh	NCStateUniv.	5.1	5.0	5.6	5.0	4.7	5.2
19	Calypso	NCStateUniv.	5.1	5.1	4.9	5.3	4.9	5.4
20	PCX-105	Baker Seeds	5.1	5.0	5.2	4.8	5.0	5.4
21	NC-Leland	NCStateUniv.	4.9	4.7	5.6	4.3	4.6	5.7
22	PCX-155	Baker Seeds	4.9	4.4	5.2	4.6	4.7	5.7
23	NC-Dawson	NCStateUniv.	4.8	4.9	4.9	4.6	4.4	5.4
24	H-19	Seminis	4.7	5.3	5.5	3.4	3.6	5.6
25	Wis.SMR 18	Univ. Wis.	4.6	4.6	4.7	4.5	4.3	5.0
26	NC-Lexington	NCStateUniv.	4.5	4.5	4.0	4.4	4.2	5.2
27	HSX-9050	HortAg Seeds	4.0	3.6	5.6	3.1	3.3	4.7
28	HSX-6022	HortAg Seeds	3.9	3.1	4.6	3.1	3.3	5.4
	CV (%)		14.8	20.6	19.7	20.5	20.8	18.4
	Mean		5.2	5.1	5.9	5.0	4.9	5.6
	LSD (5%)		0.4	0.6	0.6	0.5	0.5	0.5

^z 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) = 0.62**

Correlation (Texture with Seedcell) = 0.93**

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	NC-Danbury	NCStateUniv.	0	0	0	0
2	NC-Leland	NCStateUniv.	0	0	0	0
3	NC-Lexington	NCStateUniv.	0	0	0	0
4	HSX-6022	HortAg Seeds	0	0	0	0
5	NC-Duplin	NCStateUniv.	0	0	0	0
6	PCX-155	Baker Seeds	0	0	0	0
7	Calypso	NCStateUniv.	0	0	0	0
8	Sumter	ClemsonUniv.	0	0	0	0
9	Vlasstar	Seminis	1	1	0	0
10	NC-Longhurst	NCStateUniv.	1	1	0	0
11	PCX-105	Baker Seeds	1	1	0	0
12	Exp09-2873	Bejo Seeds	1	1	0	0
13	NC-Davie	ZeraimGedera	1	1	0	0
14	Johnston	NCStateUniv.	1	1	0	0
15	Raleigh	NCStateUniv.	1	1	0	0
16	H-19	Seminis	1	1	0	0
17	Vlaspik	Seminis	1	1	0	0
18	HSX-9050	HortAg Seeds	2	2	0	0
19	Exp09-2431	Bejo Seeds	2	2	0	0
20	CrossCountry	Harris Moran	3	3	0	0
21	Wis.SMR 18	Univ. Wis.	3	3	0	0
22	Feisty(9464)	Harris Moran	3	3	0	0
23	PCX-112	Baker Seeds	4	4	0	0
24	Exp08-7633	Bejo Seeds	6	6	0	0
25	Exp09-2420	Bejo Seeds	6	6	0	0
26	NC-Dawson	NCStateUniv.	7	7	0	0
27	Exp08-7814	Bejo Seeds	8	8	0	0
28	NC-Denton	NCStateUniv.	10	10	0	0
	CV (%)		169.8	169.8	0	0
	Mean		2.2	2.2	0	0
	LSD (5%)		6.0	6.0	0	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	NC-Danbury	NCStateUniv.	0	0	0	0
2	Vlasstar	Seminis	0	0	0	0
3	Raleigh	NCStateUniv.	0	0	0	0
4	Exp09-2873	Bejo Seeds	1	1	0	0
5	CrossCountry	Harris Moran	1	0	1	0
6	Vlaspik	Seminis	1	1	0	0
7	NC-Duplin	NCStateUniv.	1	1	0	1
8	Calypso	NCStateUniv.	1	1	0	0
9	Johnston	NCStateUniv.	1	1	0	0
10	Wis.SMR 18	Univ. Wis.	1	0	0	1
11	Feisty(9464)	Harris Moran	1	1	1	0
12	PCX-112	Baker Seeds	2	1	1	0
13	PCX-155	Baker Seeds	2	1	0	1
14	NC-Davie	ZeraimGedera	2	1	0	1
15	Exp09-2431	Bejo Seeds	2	1	1	0
16	Exp08-7633	Bejo Seeds	2	2	1	0
17	NC-Longhurst	NCStateUniv.	3	0	0	3
18	NC-Denton	NCStateUniv.	3	0	0	3
19	PCX-105	Baker Seeds	3	0	0	3
20	Exp08-7814	Bejo Seeds	3	2	2	0
21	Exp09-2420	Bejo Seeds	4	1	3	0
22	NC-Dawson	NCStateUniv.	4	1	0	3
23	NC-Lexington	NCStateUniv.	5	0	0	5
24	Sumter	ClemsonUniv.	5	5	0	0
25	NC-Leland	NCStateUniv.	5	0	0	5
26	HSX-6022	HortAg Seeds	10	0	0	10
27	HSX-9050	HortAg Seeds	12	0	0	12
28	H-19	Seminis	12	0	0	12
	CV (%)		111.8	243.6	404.1	126.4
	Mean		3.1	0.7	0.3	2.2
	LSD (5%)		5.7	2.6	1.9	4.5

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	Firm- ness (lb.)	Text- ure	Total bloaters & defects	Total bloaters	Bal- loon	Defects
1	Exp09-2873	Bejo Seeds	19.7	5.6	2	1	1	1
2	Exp09-2420	Bejo Seeds	19.6	5.4	10	6	6	4
3	Exp08-7814	Bejo Seeds	19.4	5.8	11	8	8	3
4	Sumter	ClemsonUniv.	18.9	5.9	5	0	0	5
5	PCX-112	Baker Seeds	18.8	5.1	5	4	4	2
6	NC-Duplin	NCStateUniv.	18.6	5.1	1	0	0	1
7	NC-Danbury	NCStateUniv.	18.4	5.6	0	0	0	0
8	Vlaspik	Seminis	18.3	5.5	2	1	1	1
9	Vlasstar	Seminis	18.2	6.1	1	1	1	0
10	Calypso	NCStateUniv.	17.9	5.3	1	0	0	1
11	Feisty(9464)	Harris Moran	17.8	5.1	4	3	3	1
12	Exp09-2431	Bejo Seeds	17.6	5.3	4	2	2	2
13	NC-Denton	NCStateUniv.	17.6	4.9	13	10	10	3
14	Johnston	NCStateUniv.	17.3	5.7	2	1	1	1
15	CrossCountry	Harris Moran	17.2	5.6	3	3	3	1
16	Wis.SMR 18	Univ. Wis.	17.2	4.5	4	3	3	1
17	NC-Leland	NCStateUniv.	17.2	4.3	5	0	0	5
18	Raleigh	NCStateUniv.	17.2	5.0	1	1	1	0
19	Exp08-7633	Bejo Seeds	16.8	5.6	8	6	6	2
20	NC-Lexington	NCStateUniv.	16.5	4.4	5	0	0	5
21	NC-Longhurst	NCStateUniv.	16.4	4.5	3	1	1	3
22	NC-Dawson	NCStateUniv.	16.4	4.6	11	7	7	4
23	H-19	Seminis	16.4	3.4	13	1	1	12
24	PCX-155	Baker Seeds	16.3	4.6	2	0	0	2
25	NC-Davie	ZerainGedera	15.8	5.1	3	1	1	2
26	PCX-105	Baker Seeds	15.8	4.8	4	1	1	3
27	HSX-9050	HortAg Seeds	10.4	3.1	13	2	2	12
28	HSX-6022	HortAg Seeds	10.3	3.1	10	0	0	10
	CV (%)		7.5	20.5	106.6	169.8	169.8	111.8
	Mean		17.1	5.0	5.3	2.2	2.2	3.1
	LSD (5%)		2.1	0.5	9.2	6.0	6.0	5.7

² Firmness determined by punch-testing (Magness-Taylor) 10 grade 2B fruits.
Correlation of Texture with: Firmness = 0.64**, Balloon = 0.002ns
Correlation of Texture with: Honeycomb = ., Soft centers = -0.68**

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	Apol	6.3	6.3	6.3	6.3	6.3	6.3
2	Denlinger	6.3	5.9	6.9	5.7	5.9	7.0
3	McCammon	5.7	5.5	6.2	5.5	5.5	5.5
4	JacksonRk	5.6	6.0	6.8	5.0	5.0	5.3
5	Woods	4.9	4.8	4.8	5.1	4.8	4.8
6	Kornegay	4.6	4.8	5.1	4.6	4.1	4.7
7	Quinn	4.6	3.8	4.3	3.9	3.7	7.3
8	Hawley	4.6	4.4	4.7	4.5	4.6	4.8
9	CatesJ	4.0	3.5	4.3	4.0	4.1	4.2

^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

Preliminary (Stage 1) Pickling Cucumber Trial 2010

The stage 1 pickle trial was not run this year.

Observational (Stage 2) Pickling Cucumber Trial 2010

The stage 2 pickle trial was not run this year.

Summer (Stage 4) Pickling Cucumber Trial 2010

The stage 4 pickle trial was not run this year.

Spring (Stage 3) Pickling Cucumber Trial 2010

Todd C. Wehner and Tammy L. Ellington

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 10 May, and harvested 6 times (Mondays and Thursdays) between 21 June and 9 July.

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, and could be advanced to the next stage:

1	Vlaspik	Seminis
2	Exp08-7633	Bejo Seeds
3	Raleigh	NCStateUniv.
4	PCX-155	Baker Seeds
5	Feisty(9464)	Harris Moran
6	CrossCountry	Harris Moran
7	Exp09-2431	Bejo Seeds
8	Exp09-2873	Bejo Seeds
9	PCX-112	Baker Seeds

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	HSX-6022	HortAg Seeds	3600	524	13	4	20	50	13	26
2	NC-Lexington	NCStateUniv.	3499	407	8	10	31	42	8	26
3	Vlaspik	Seminis	3292	529	25	5	20	39	11	26
4	Exp08-7633	Bejo Seeds	3084	461	15	5	21	43	15	24
5	PCX-155	Baker Seeds	3004	496	29	6	17	39	9	26
6	Raleigh	NCStateUniv.	2990	526	19	4	16	40	21	23
7	Exp09-2873	Bejo Seeds	2923	466	15	5	21	39	21	26
8	HSX-9050	HortAg Seeds	2866	515	30	3	19	37	10	26
9	Exp09-2431	Bejo Seeds	2799	468	18	5	19	37	20	26
10	CrossCountry	Harris Moran	2757	492	22	4	18	37	19	26
11	Calypso	NCStateUniv.	2709	476	20	5	18	37	21	26
12	PCX-112	Baker Seeds	2651	440	21	5	21	35	18	26
13	NC-Longhurst	NCStateUniv.	2645	280	12	15	41	27	5	26
14	Feisty(9464)	Harris Moran	2623	410	20	6	20	40	15	26
15	NC-Merritt	NCStateUniv.	2523	490	36	4	16	35	10	26
16	Vlasstar	Seminis	2444	386	21	7	23	32	17	25
17	NC-Davie	ZeraimGedera	2403	365	17	5	26	36	17	25
18	NC-Danbury	NCStateUniv.	2350	349	16	6	25	37	17	20
19	NC-Leland	NCStateUniv.	2344	234	17	18	46	17	2	20
20	PCX-105	Baker Seeds	2341	418	25	4	23	29	18	26
21	NC-Moriah	NCStateUniv.	2281	457	26	3	19	30	22	26
22	Exp08-7814	Bejo Seeds	2231	403	17	5	17	36	24	26
23	Exp09-2420	Bejo Seeds	2151	370	21	5	19	35	19	26
24	NC-Denton	NCStateUniv.	2075	368	25	5	19	34	17	18
25	NC-Dawson	NCStateUniv.	2066	414	29	4	20	27	21	24
26	Johnston	NCStateUniv.	1946	305	24	5	23	35	12	9
27	Sumter	ClemsonUniv.	1782	393	19	3	16	29	33	26
28	H-19	Seminis	1635	163	8	16	44	26	5	26
29	NC-Duplin	NCStateUniv.	1536	257	19	5	21	34	21	9
30	Wis.SMR 18	Univ. Wis.	1108	254	25	2	14	30	28	26
31	Coolgreen	Seminis	988	166	19	5	22	35	20	11
CV (%)			13	10	17	22	15	13	26	10
Mean			2440	396	20	6	22	35	16	24
LSD (5%)			504	68	6	2	6	7	7	4

Correlation (Fruit value with fruit weight) = 0.79**

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	HSX-6022	HortAg Seeds	1665	46	152	60	3016	84	3113	86	3369	93
2	HSX-9050	HortAg Seeds	1135	39	802	62	2499	87	2577	90	2739	95
3	Vlaspik	Seminis	1138	35	625	50	2495	76	2723	82	3148	96
4	Feisty(9464)	Harris Moran	967	37	519	58	2201	84	2260	86	2489	95
5	Exp08-7633	Bejo Seeds	832	27	482	48	2250	73	2431	79	2835	92
6	Raleigh	NCStateUniv.	969	33	473	50	2307	78	2530	85	2823	95
7	CrossCountry	Harris Moran	892	32	410	51	2138	78	2330	85	2587	94
8	PCX-155	Baker Seeds	876	29	395	47	2245	75	2420	80	2820	94
9	Exp09-2431	Bejo Seeds	839	30	371	49	2094	75	2272	81	2576	92
10	Exp09-2873	Bejo Seeds	773	26	316	45	2080	71	2291	78	2721	93
11	NC-Merritt	NCStateUniv.	673	27	211	48	1963	78	2103	84	2431	96
12	Calypso	NCStateUniv.	675	25	196	44	1970	73	2159	80	2554	94
13	NC-Moriah	NCStateUniv.	558	25	086	48	1679	74	1791	79	2082	91
14	PCX-112	Baker Seeds	676	26	079	41	1831	69	1991	75	2509	95
15	Exp08-7814	Bejo Seeds	526	24	036	46	1664	75	1797	81	2107	94
16	PCX-105	Baker Seeds	504	22	962	41	1648	70	1807	77	2184	93
17	Sumter	ClemsonUniv.	453	25	815	46	1258	71	1443	81	1673	94
18	Vlasstar	Seminis	370	15	803	33	1609	66	1843	75	2250	92
19	NC-Dawson	NCStateUniv.	366	17	778	37	1292	62	1448	69	1825	88
20	Exp09-2420	Bejo Seeds	331	15	743	35	1459	68	1677	78	2049	95
21	NC-Danbury	NCStateUniv.	271	11	735	31	1379	58	1597	68	2079	88
22	NC-Denton	NCStateUniv.	352	16	655	31	1289	62	1449	70	1849	89
23	Johnston	NCStateUniv.	332	17	650	33	1264	65	1410	72	1789	92
24	NC-Davie	ZeraimGedera	168	7	637	26	1347	56	1674	70	2093	87
25	Wis.SMR 18	Univ. Wis.	349	31	575	51	820	73	914	82	1053	95
26	NC-Lexington	NCStateUniv.	178	5	514	15	1626	47	2022	58	2766	79
27	NC-Duplin	NCStateUniv.	221	15	452	30	860	56	1117	72	1441	94
28	Coolgreen	Seminis	76	7	383	40	799	82	872	90	956	97
29	NC-Longhurst	NCStateUniv.	22	1	137	5	906	34	1209	45	1987	75
30	NC-Leland	NCStateUniv.	11	0	79	4	668	27	1016	41	1567	64
31	H-19	Seminis	10	1	19	1	165	10	445	26	883	52
	CV (%)		24	24	16	13	12	8	13	7	13	4
	Mean		555	21	971	39	1639	66	1830	74	2201	90
	LSD (5%)		215	8	261	8	327	8	386	8	471	7

Correlation (Fruit value with value in harvests 1 and 2) = 0.64**

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	PCX-112	Baker Seeds	7.7	8.3	8.0	6.7	8.0
2	Exp09-2420	Bejo Seeds	7.3	7.7	8.0	7.0	7.3
3	Exp08-7814	Bejo Seeds	7.2	7.3	8.0	7.0	7.3
4	NC-Danbury	NCStateUniv.	7.1	7.7	7.0	6.0	7.7
5	Vlaspik	Seminis	7.1	7.3	7.3	6.7	7.3
6	Exp09-2431	Bejo Seeds	7.1	7.3	7.3	6.7	7.3
7	NC-Duplin	NCStateUniv.	6.9	8.0	7.0	5.0	7.7
8	Exp09-2873	Bejo Seeds	6.9	7.0	8.0	6.0	7.7
9	PCX-155	Baker Seeds	6.8	7.0	7.7	6.3	7.0
10	NC-Leland	NCStateUniv.	6.8	7.0	6.0	6.3	7.0
11	CrossCountry	Harris Moran	6.8	7.3	8.0	5.3	7.7
12	Raleigh	NCStateUniv.	6.7	7.7	7.0	4.7	7.7
13	Johnston	NCStateUniv.	6.7	7.3	7.7	5.3	7.3
14	Exp08-7633	Bejo Seeds	6.7	6.7	6.3	6.7	6.7
15	PCX-105	Baker Seeds	6.6	7.0	5.7	6.0	6.7
16	Vlasstar	Seminis	6.6	7.3	6.3	5.0	7.3
17	Feisty(9464)	Harris Moran	6.4	7.0	8.0	5.0	7.3
18	NC-Longhurst	NCStateUniv.	6.4	7.0	6.0	6.0	6.3
19	NC-Merritt	NCStateUniv.	6.2	7.3	7.7	4.3	7.0
20	Sumter	ClemsonUniv.	6.2	7.0	4.0	5.7	6.0
21	Calypso	NCStateUniv.	6.2	6.7	4.7	5.7	6.3
22	NC-Dawson	NCStateUniv.	6.1	6.7	6.3	5.3	6.3
23	NC-Lexington	NCStateUniv.	6.1	6.7	4.0	5.3	6.3
24	NC-Davie	ZerainGedera	6.0	7.0	5.7	4.3	6.7
25	NC-Moriah	NCStateUniv.	5.7	6.3	6.0	4.3	6.3
26	Coolgreen	Seminis	5.6	6.3	4.7	4.0	6.3
27	HSX-9050	HortAg Seeds	5.4	6.3	6.3	3.7	6.3
28	H-19	Seminis	5.3	6.0	5.0	4.0	6.0
29	NC-Denton	NCStateUniv.	5.3	5.7	6.0	4.7	5.7
30	Wis.SMR 18	Univ. Wis.	4.9	6.0	4.0	3.0	5.7
31	HSX-6022	HortAg Seeds	4.3	4.7	4.3	3.3	5.0
	CV (%)		9.6	11.0	11.0	16.1	10.8
	Mean		6.4	6.9	6.4	5.3	6.8
	LSD (5%)		1.0	1.2	1.1	1.4	1.2

^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) = 0.10^{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°			Defects2°		
					2	4	6	2	4	6
1	Exp09-2420	Bejo Seeds	17	3.2	K	K	K	K	K	G
2	Exp08-7814	Bejo Seeds	17	3.2	K	K	K	T	T	G
3	NC-Danbury	NCStateUniv.	16	3.3	K	K	K	K	D	G
4	NC-Duplin	NCStateUniv.	16	3.2	K	M	K	M	K	G
5	NC-Longhurst	NCStateUniv.	16	3.7	T	T	V	W	W	T
6	NC-Denton	NCStateUniv.	16	3.5	M	M	D	K	D	G
7	Vlaspik	Seminis	16	3.5	K	K	G	G	G	K
8	NC-Leland	NCStateUniv.	16	3.6	V	V	V	T	T	G
9	Exp09-2431	Bejo Seeds	15	3.4	T	K	G	K	D	T
10	Raleigh	NCStateUniv.	15	3.3	K	T	K	G	G	G
11	Johnston	NCStateUniv.	15	3.4	K	G	G	G	K	T
12	Exp08-7633	Bejo Seeds	15	3.1	K	K	K	K	T	M
13	PCX-112	Baker Seeds	15	3.3	K	K	K	K	G	G
14	Sumter	ClemsonUniv.	15	3.0	W	W	W	K	K	K
15	Calypso	NCStateUniv.	15	3.3	V	W	K	K	K	V
16	NC-Lexington	NCStateUniv.	15	2.9	W	W	V	H	K	K
17	NC-Davie	ZeraimGedera	15	3.2	K	K	K	M	H	G
18	H-19	Seminis	15	3.0	V	V	V	K	K	K
19	Feisty(9464)	Harris Moran	15	3.5	K	T	T	G	G	G
20	CrossCountry	Harris Moran	14	3.4	K	T	K	G	K	G
21	PCX-105	Baker Seeds	14	3.4	K	D	D	G	D	G
22	Vlasstar	Seminis	14	3.1	H	K	K	K	H	D
23	NC-Moriah	NCStateUniv.	14	3.5	G	G	M	T	T	G
24	Exp09-2873	Bejo Seeds	14	3.1	K	H	K	K	K	T
25	PCX-155	Baker Seeds	14	3.8	K	T	G	G	D	D
26	NC-Dawson	NCStateUniv.	14	3.4	G	G	G	K	T	T
27	Wis.SMR 18	Univ. Wis.	13	2.9	H	Y	W	W	T	K
28	NC-Merritt	NCStateUniv.	12	3.2	K	T	D	T	M	T
29	Coolgreen	Seminis	12	3.5	O	T	T	T	K	G
30	HSX-9050	HortAg Seeds	12	3.0	K	D	D	D	H	K
31	HSX-6022	HortAg Seeds	10	2.6	H	H	H	A	A	A
CV (%)			10	7.5						
Mean			15	3.3						
LSD (5%)			2	0.4						

^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	HSX-9050	HortAg Seeds	9	8	6
2	Exp09-2431	Bejo Seeds	8	8	6
3	Feisty(9464)	Harris Moran	8	8	7
4	PCX-155	Baker Seeds	8	8	6
5	Vlaspik	Seminis	8	7	7
6	Vlasstar	Seminis	8	7	6
7	Calypso	NCStateUniv.	7	7	8
8	Exp09-2873	Bejo Seeds	7	7	7
9	HSX-6022	HortAg Seeds	7	7	6
10	Exp08-7633	Bejo Seeds	7	7	8
11	Raleigh	NCStateUniv.	7	6	7
12	Exp08-7814	Bejo Seeds	7	8	7
13	PCX-112	Baker Seeds	7	8	7
14	NC-Merritt	NCStateUniv.	6	8	7
15	Johnston	NCStateUniv.	6	6	6
16	CrossCountry	Harris Moran	6	8	7
17	NC-Dawson	NCStateUniv.	6	8	6
18	Exp09-2420	Bejo Seeds	6	8	7
19	NC-Duplin	NCStateUniv.	6	6	8
20	PCX-105	Baker Seeds	5	7	7
21	Sumter	ClemsonUniv.	5	8	8
22	NC-Denton	NCStateUniv.	5	8	7
23	Wis.SMR 18	Univ. Wis.	5	8	5
24	NC-Moriah	NCStateUniv.	4	8	8
25	NC-Davie	ZerainGedera	4	7	8
26	NC-Danbury	NCStateUniv.	4	7	7
27	NC-Leland	NCStateUniv.	4	7	5
28	NC-Longhurst	NCStateUniv.	4	7	5
29	NC-Lexington	NCStateUniv.	4	7	5
30	Coolgreen	Seminis	4	6	5
31	H-19	Seminis	4	6	5
	CV (%)		18	10	12
	Mean		6	7	7
	LSD (5%)		2	1	1

^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) = 0.52**; (Yield w/ vine size) = 0.40**

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	Feisty(9464)	Harris Moran	3.0
2	Exp08-7814	Bejo Seeds	3.0
3	CrossCountry	Harris Moran	3.0
4	Exp09-2431	Bejo Seeds	3.3
5	Exp09-2873	Bejo Seeds	3.3
6	Exp09-2420	Bejo Seeds	3.7
7	PCX-105	Baker Seeds	3.7
8	NC-Moriah	NCStateUniv.	3.7
9	NC-Davie	ZerainGedera	3.7
10	PCX-155	Baker Seeds	4.3
11	Vlasstar	Seminis	4.3
12	Calypso	NCStateUniv.	4.3
13	Exp08-7633	Bejo Seeds	4.3
14	Raleigh	NCStateUniv.	4.3
15	Vlaspik	Seminis	4.7
16	PCX-112	Baker Seeds	4.7
17	HSX-9050	HortAg Seeds	5.0
18	HSX-6022	HortAg Seeds	5.0
19	Johnston	NCStateUniv.	5.0
20	NC-Dawson	NCStateUniv.	5.0
21	NC-Denton	NCStateUniv.	5.0
22	NC-Danbury	NCStateUniv.	5.0
23	NC-Leland	NCStateUniv.	5.3
24	NC-Lexington	NCStateUniv.	5.3
25	Coolgreen	Seminis	5.3
26	NC-Merritt	NCStateUniv.	5.7
27	Sumter	ClemsonUniv.	6.0
28	NC-Longhurst	NCStateUniv.	6.3
29	Wis.SMR 18	Univ. Wis.	6.7
30	H-19	Seminis	6.7
31	NC-Duplin	NCStateUniv.	7.0
	CV (%)		19.5
	Mean		4.7
	LSD (5%)		1.5

^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) =-0.42**

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	HSX-6022	HortAg Seeds	14.9	10.9	17.9	16.3
2	Vlaspik	Seminis	13.8	10.8	8.9	9.2
3	HSX-9050	HortAg Seeds	13.1	10.1	17.1	15.8
4	Exp08-7633	Bejo Seeds	12.9	10.0	12.3	12.1
5	Raleigh	NCStateUniv.	12.8	10.2	10.6	10.4
6	PCX-155	Baker Seeds	12.6	10.0	11.1	11.5
7	Feisty(9464)	Harris Moran	12.5	9.8	10.9	10.5
8	CrossCountry	Harris Moran	12.4	10.0	9.7	9.5
9	Exp09-2431	Bejo Seeds	12.4	9.9	9.0	9.0
10	Exp09-2873	Bejo Seeds	12.4	9.9	10.1	11.0
11	PCX-112	Baker Seeds	11.2	9.3	9.4	11.7
12	Calypso	NCStateUniv.	11.2	9.1	14.7	13.9
13	NC-Merritt	NCStateUniv.	10.9	8.9	16.5	16.6
14	Exp08-7814	Bejo Seeds	10.6	8.8	11.5	10.9
15	NC-Moriah	NCStateUniv.	10.2	8.5	18.5	16.1
16	PCX-105	Baker Seeds	10.1	8.4	14.6	14.6
17	NC-Lexington	NCStateUniv.	10.1	8.6	17.4	18.4
18	Vlasstar	Seminis	9.7	8.2	14.9	16.4
19	Exp09-2420	Bejo Seeds	9.5	8.1	13.7	14.0
20	NC-Danbury	NCStateUniv.	9.4	7.9	14.1	15.7
21	NC-Davie	ZeraimGedera	9.0	7.7	17.3	17.4
22	NC-Dawson	NCStateUniv.	8.8	7.6	19.4	19.0
23	Johnston	NCStateUniv.	8.4	7.2	17.1	18.3
24	Sumter	ClemsonUniv.	8.2	7.1	20.4	19.0
25	NC-Denton	NCStateUniv.	8.2	7.0	23.3	21.1
26	NC-Longhurst	NCStateUniv.	7.6	6.7	19.4	20.8
27	NC-Leland	NCStateUniv.	7.1	6.4	17.5	19.4
28	NC-Duplin	NCStateUniv.	6.9	6.0	19.8	21.2
29	Wis.SMR 18	Univ. Wis.	5.9	5.3	27.0	25.1
30	Coolgreen	Seminis	5.5	5.0	24.7	24.3
31	H-19	Seminis	5.1	4.6	27.3	26.8
	CV (%)		8.6	7.0	17.7	14.2
	Mean		10.1	8.3	16.0	16.0
	LSD (5%)		1.4	0.9	4.6	3.7

^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) = 0.91** Correlation (Yield with ARI1) = -0.61**

Slicing Cucumbers

Preliminary (Stage 1) Slicing Cucumber Trial 2010

The stage 1 slicer trial was not run this year.

Observational (Stage 2) Slicing Cucumber Trial 2010

The stage 2 slicer trial was not run this year.

Clinton (Stage 3) Slicing Cucumber Trial 2010

Todd C. Wehner and Tammy L. Ellington

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 29 April, and harvested 6 times (Mondays and Thursdays) between 10 and 28 June.

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, and could be advanced to the next stage:

1	G83xNC-59	NC StateUniv
2	General Lee	Clause-HM
3	Dasher II	Mon-Seminis
4	Intimidator	Mon-Seminis

Table 20. Stage 3 spring slicer trial (Clinton) - yield data (cultigens ranked by cwt/A of Fancy + No. 1 grade fruit).

Rank	Cultivar or line	Seed source	Yield(cwt/A)		Percent fancy +No.1	Percent culls	Plants per A (x1000)
			Fancy +No.1	Market- able			
1	Cherokee 87	Check	258	476	39	28	22
2	General Lee	Clause-HM	256	484	42	21	26
3	G83xNC-62	NC StateUniv	241	504	36	25	23
4	G83xNC-59	NC StateUniv	237	517	34	27	26
5	NC-Sunshine	NC StateUniv	222	375	41	31	13
6	Dasher II	Mon-Seminis	220	457	40	18	26
7	G83xNC-58	NC StateUniv	214	406	39	25	20
8	Intimidator	Mon-Seminis	211	503	33	22	25
9	NC-Stratford	NC StateUniv	209	422	35	30	20
10	G83xNC-63	NC StateUniv	195	389	35	31	25
11	Panther	BayerNunhems	172	334	40	23	18
12	Ashley	Check	147	313	39	16	12
13	Marketmore76	Check	145	271	45	13	22
14	Poinsett 76	Cornell Univ	136	267	40	23	25
	CV (%)		26	20	17	20	15
	Mean		205	408	38	24	22
	LSD (5%)		88	137	11	8	5

Correlation (Marketable yield with % culls) = 0.03^{ns}

Table 21. Stage 3 spring slicer trial (Clinton) - 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	G83xNC-62	NC StateUniv	84	17	276	52	351	67	416	82	462	92
2	G83xNC-59	NC StateUniv	75	15	240	47	320	62	387	75	494	96
3	Dasher II	Mon-Seminis	21	5	226	49	286	63	332	73	402	88
4	Intimidator	Mon-Seminis	11	2	195	37	315	62	398	78	479	95
5	General Lee	Clause-HM	62	11	191	39	266	55	355	73	418	86
6	G83xNC-63	NC StateUniv	49	13	179	46	233	60	284	73	329	85
7	G83xNC-58	NC StateUniv	56	14	176	44	263	65	334	82	371	92
8	Cherokee 87	Check	23	5	165	34	275	58	354	74	402	84
9	NC-Stratford	NC StateUniv	47	11	150	35	287	68	335	79	393	93
10	NC-Sunshine	NC StateUniv	24	6	126	34	247	66	298	79	353	94
11	Poinsett 76	Cornell Univ	35	11	109	41	168	66	211	79	243	91
12	Panther	BayerNunhems	14	4	60	18	188	57	249	75	288	87
13	Ashley	Check	13	4	48	15	146	47	232	74	272	87
14	Marketmore76	Check	0	0	3	1	63	24	144	52	226	83
	CV (%)		67	58	40	22	25	13	23	6	21	5
	Mean		37	8	153	35	243	59	309	75	367	89
	LSD (5%)		41	8	103	13	101	12	119	8	129	8

Correlation (Marketable yield with yield in harvests 1-2) = 0.85**

Correlation (Marketable yield with % of yield in harvests 1-2) = 0.57**

Table 22. Stage 3 spring slicer trial (Clinton) - fruit quality data (cultigens ranked by average quality).^z

Rank	Cultivar or line	Seed source	Average quality	Shape	Color	Seed- cell	Overall impression
1	NC-Sunshine	NC StateUniv	7.9	7	8	9	8
2	Marketmore76	Check	7.7	8	8	7	8
3	NC-Stratford	NC StateUniv	7.4	7	8	8	7
4	G83xNC-58	NC StateUniv	7.2	8	8	6	8
5	Intimidator	Mon-Seminis	6.7	7	7	6	7
6	Panther	BayerNunhems	6.7	7	7	6	7
7	General Lee	Clause-HM	6.6	7	6	6	7
8	G83xNC-63	NC StateUniv	6.4	7	7	6	7
9	G83xNC-59	NC StateUniv	6.3	7	6	5	7
10	G83xNC-62	NC StateUniv	5.6	6	7	5	6
11	Dasher II	Mon-Seminis	5.4	6	5	4	6
12	Poinsett 76	Cornell Univ	5.3	6	7	4	6
13	Cherokee 87	Check	5.2	5	6	5	5
14	Ashley	Check	4.7	5	5	5	4
15	CV (%)		8.9	12	15	13	10
16	Mean		6.4	7	7	6	7
17	LSD (5%)		1.0	1	2	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) = 0.01^{ns}

Table 23. Stage 3 spring slicer trial (Clinton) - 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	NC-Sunshine	NC StateUniv	9.0	2.4	1.09	K	K	H	H	J	K
2	Marketmore76	Check	8.6	2.3	0.99	K	K	K	T	T	T
3	NC-Stratford	NC StateUniv	9.0	2.3	1.16	K	K	K	M	J	G
4	G83xNC-58	NC StateUniv	8.9	2.3	1.11	K	K	T	K	H	K
5	Intimidator	Mon-Seminis	8.8	2.3	1.03	K	T	K	K	Y	T
6	Panther	BayerNunhems	9.1	2.4	1.12	K	K	D	T	T	T
7	General Lee	Clause-HM	8.8	2.4	1.13	K	H	G	K	T	K
8	G83xNC-63	NC StateUniv	9.0	2.4	1.09	K	G	G	H	K	K
9	G83xNC-59	NC StateUniv	9.6	2.5	1.32	K	K	M	K	M	T
10	G83xNC-62	NC StateUniv	9.0	2.4	1.25	K	K	H	O	O	K
11	Dasher II	Mon-Seminis	8.5	2.3	0.99	H	H	T	D	T	K
12	Poinsett 76	Cornell Univ	8.6	2.5	1.15	H	H	H	D	K	D
13	Cherokee 87	Check	8.4	2.4	1.05	H	M	M	M	J	H
14	Ashley	Check	8.6	2.4	1.12	H	H	H	M	M	M
CV (%)			5.4	5.0	11.20						
Mean			8.8	2.4	1.11						
LSD (5%)			0.8	0.2	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 24. Stage 3 spring slicer trial (Clinton) - sex expression and vine data (cultigens ranked by gynoecious rating).

Rank	Cultivar or line	Seed source	Gyn. rating ^z	Early yield (cwt/A)	Earli- ness (%) ^x	Vine size ^w	Vine color ^w
1	Intimidator	Mon-Seminis	7	195	37	8	8
2	Panther	BayerNunhems	6	60	18	6	7
3	Dasher II	Mon-Seminis	6	226	49	9	8
4	G83xNC-62	NC StateUniv	6	276	52	7	6
5	Cherokee 87	Check	6	165	34	7	7
6	NC-Sunshine	NC StateUniv	6	126	34	6	7
7	G83xNC-63	NC StateUniv	5	179	46	8	8
8	General Lee	Clause-HM	5	191	39	8	7
9	G83xNC-58	NC StateUniv	5	176	44	7	7
10	NC-Stratford	NC StateUniv	5	150	35	6	7
11	G83xNC-59	NC StateUniv	4	240	47	8	6
12	Poinsett 76	Cornell Univ	4	109	41	8	6
13	Ashley	Check	3	48	15	6	7
14	Marketmore76	Check	2	3	1	7	7
	CV (%)		29	40	22	11	18
	Mean		5	153	35	7	7
	LSD (5%)		2	103	13	1	2

^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) = 0.40*

Table 25. Stage 3 spring slicer trial (Clinton) - disease ratings (cultigens ranked by average disease resistance).^z

Rank	Cultivar or line	Seed source	Downy mildew
1	Marketmore76	Check	3.0
2	Dasher II	Mon-Seminis	3.3
3	Panther	BayerNunhems	3.7
4	Cherokee 87	Check	3.7
5	General Lee	Clause-HM	3.7
6	Ashley	Check	3.7
7	Intimidator	Mon-Seminis	4.0
8	G83xNC-59	NC StateUniv	4.0
9	Poinsett 76	Cornell Univ	4.0
10	G83xNC-62	NC StateUniv	5.0
11	G83xNC-58	NC StateUniv	5.0
12	NC-Stratford	NC StateUniv	5.0
13	NC-Sunshine	NC StateUniv	5.7
14	G83xNC-63	NC StateUniv	5.7
	CV (%)		30.2
	Mean		4.2
	LSD (5%)		2.1

^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) = 0.19^{ns}

Table 26. Stage 3 spring slicer trial (Clinton) - selection indexes (cultigens ranked by SWI1).^z

Rank	Cultivar or line	Seed source	Simple weighted indexes		Average rank indexes	
			SWI1	SWI2	ARI1	ARI2
1	G83xNC-62	NC StateUniv	11.0	8.6	8.3	7.4
2	G83xNC-59	NC StateUniv	10.8	8.6	6.2	5.7
3	General Lee	Clause-HM	10.2	8.3	6.3	6.3
4	Dasher II	Mon-Seminis	10.0	8.1	7.5	6.3
5	Intimidator	Mon-Seminis	9.8	8.0	6.3	6.1
6	Cherokee 87	Check	9.4	7.7	8.7	8.1
7	G83xNC-58	NC StateUniv	9.4	7.8	5.5	6.1
8	NC-Stratford	NC StateUniv	9.0	7.5	6.2	6.8
9	G83xNC-63	NC StateUniv	8.8	7.3	7.9	8.0
10	NC-Sunshine	NC StateUniv	8.6	7.4	6.0	7.5
11	Panther	BayerNunhems	6.9	6.0	8.3	8.8
12	Poinsett 76	Cornell Univ	6.7	5.8	10.6	9.7
13	Marketmore76	Check	5.9	5.3	6.4	7.6
14	Ashley	Check	5.7	5.0	11.0	10.6
	CV (%)		17.6	14.5	16.8	14.7
	Mean		8.7	7.2	7.5	7.5
	LSD (5%)		2.6	1.8	2.1	1.8

^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) = 0.94**

Correlation (Marketable yield with ARI1) = -0.40*

Kinston (Stage 3) Slicing Cucumber Trial 2010

Todd C. Wehner and Tammy L. Ellington

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 27 April, and harvested 6 times (Mondays and Thursdays) between 15 June and 2 July.

Data Collection

1. Fruit 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, and could be advanced to the next stage:

1	NC-Stratford	NC StateUniv
2	Dasher II	Mon-Seminis
3	G83xNC-58	NC StateUniv
4	G83xNC-63	NC StateUniv
5	Intimidator	Mon-Seminis

Table 27. Stage 3 spring slicer trial (Kinston) - yield data (cultigens ranked by cwt/A of Fancy + No. 1 grade fruit).

Rank	Cultivar or line	Seed source	Yield(cwt/A)		Percent	Percent	Plants
			Fancy +No.1	Market- able	fancy +No.1	culls	per A (x1000)
1	NC-Stratford	NC StateUniv	395	622	52	19	24
2	Dasher II	Mon-Seminis	375	475	71	11	26
3	G83xNC-59	NC StateUniv	322	496	52	17	26
4	Ashley	Check	321	528	55	12	13
5	Cherokee 87	Check	319	521	54	12	22
6	Panther	BayerNunhems	294	422	60	13	17
7	General Lee	Clause-HM	293	435	58	15	24
8	Intimidator	Mon-Seminis	292	393	61	18	26
9	G83xNC-63	NC StateUniv	276	433	53	18	24
10	G83xNC-62	NC StateUniv	252	434	49	17	25
11	G83xNC-58	NC StateUniv	243	498	42	15	21
12	Poinsett 76	Cornell Univ	241	404	53	15	22
13	Marketmore76	Check	207	264	75	4	21
14	NC-Sunshine	NC StateUniv	201	375	43	24	14
	CV (%)		20	18	16	30	16
	Mean		288	450	55	15	22
	LSD (5%)		96	135	15	7	6

Correlation (Marketable yield with % culls) = -0.11^{ns}

Table 28. Stage 3 spring slicer trial (Kinston) - earliness data (cultigens ranked by weight of Fancy + No.1 grade fruit in harvests 1 and 2).

Cumulative fruit weight and % of			total weight (6 harvests) for harvest:									
Rank	Cultivar or line	Seed source	1		1-2		1-3		1-4		1-5	
			Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%
1	NC-Stratford	NC StateUniv	199	32	279	45	342	55	444	71	539	87
2	G83xNC-62	NC StateUniv	169	39	209	48	261	60	341	79	420	97
3	G83xNC-58	NC StateUniv	123	25	206	41	261	53	341	69	430	86
4	NC-Sunshine	NC StateUniv	120	33	197	53	249	67	296	81	361	96
5	G83xNC-63	NC StateUniv	141	34	195	46	240	56	300	70	381	89
6	Ashley	Check	42	8	194	35	259	47	317	59	478	91
7	G83xNC-59	NC StateUniv	108	22	184	37	260	52	340	68	426	86
8	Cherokee 87	Check	120	23	177	34	250	48	386	74	463	89
9	Dasher II	Mon-Seminis	113	24	166	35	236	50	330	69	412	87
10	Intimidator	Mon-Seminis	100	25	162	41	214	54	266	68	328	84
11	Panther	BayerNunhems	80	19	139	33	187	44	254	60	380	90
12	General Lee	Clause-HM	89	20	111	25	209	48	285	65	379	87
13	Poinsett 76	Cornell Univ	50	11	98	21	203	48	233	56	358	88
14	Marketmore76	Check	0	0	21	8	104	39	156	59	217	82
	CV (%)		24	25	29	17	28	14	22	11	19	6
	Mean		104	23	167	36	234	51	306	68	398	88
	LSD (5%)		42	10	82	10	109	12	114	13	125	9

Correlation (Marketable yield with yield in harvests 1-2) = 0.83**

Correlation (Marketable yield with % of yield in harvests 1-2) = 0.45*

Table 29. Stage 3 spring slicer trial (Kinston) - fruit quality data (cultigens ranked by average quality).^z

Rank	Cultivar or line	Seed source	Average quality	Shape	Color	Seed- cell	Overall impression
1	Dasher II	Mon-Seminis	7.3	7	7	7	8
2	General Lee	Clause-HM	6.8	7	7	6	7
3	Intimidator	Mon-Seminis	6.7	8	7	5	8
4	G83xNC-58	NC StateUniv	6.7	7	7	6	7
5	Poinsett 76	Cornell Univ	6.6	7	7	6	7
6	NC-Sunshine	NC StateUniv	6.6	7	8	6	7
7	Panther	BayerNunhems	6.3	7	8	5	7
8	NC-Stratford	NC StateUniv	6.3	7	7	6	6
9	G83xNC-63	NC StateUniv	6.3	7	8	5	7
10	Marketmore76	Check	6.2	6	6	6	6
11	G83xNC-62	NC StateUniv	6.1	7	8	5	6
12	Ashley	Check	6.0	6	6	6	6
13	G83xNC-59	NC StateUniv	5.8	6	7	5	6
14	Cherokee 87	Check	5.3	5	5	6	5
	CV (%)		11.6	10	11	25	11
	Mean		6.4	7	7	6	7
	LSD (5%)		1.2	1	1	2	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) = -0.12^{ns}

Table 30. Stage 3 spring slicer trial (Kinston) - fruit dimensions and comments (cultigens ranked by average quality rating).^z

Rank	Cultivar or line	Seed source	Length (inch)	Diameter (inch)	Wt. (lb.)	Defect1°			Defect2°		
						2	4	6	2	4	6
1	Dasher II	Mon-Seminis	8.4	2.2	0.90	K	K	K	K	G	G
2	General Lee	Clause-HM	8.3	2.2	0.86	K	K	K	K	T	T
3	Intimidator	Mon-Seminis	8.9	2.2	0.94	K	G	K	K	M	G
4	G83xNC-58	NC StateUniv	8.8	2.2	0.86	M	T	K	K	D	G
5	Poinsett 76	Cornell Univ	8.0	2.3	0.86	A	H	K	V	T	K
6	NC-Sunshine	NC StateUniv	8.9	2.5	1.21	G	H	K	K	D	H
7	Panther	BayerNunhems	8.8	2.3	0.94	M	D	K	K	K	T
8	NC-Stratford	NC StateUniv	8.4	2.3	0.82	K	J	D	M	H	H
9	G83xNC-63	NC StateUniv	8.9	2.3	1.00	K	D	K	K	T	G
10	Marketmore76	Check	8.6	2.3	0.97	H	H	H	M	M	T
11	G83xNC-62	NC StateUniv	8.5	2.2	0.84	K	G	K	K	T	G
12	Ashley	Check	8.7	2.3	0.94	H	M	M	M	G	H
13	G83xNC-59	NC StateUniv	8.0	2.3	0.86	K	H	H	K	T	D
14	Cherokee 87	Check	7.9	2.3	0.85	A	M	M	K	H	H
CV (%)			5.3	5.7	15.92						
Mean			8.5	2.3	0.92						
LSD (5%)			0.8	0.2	0.25						

^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 31. Stage 3 spring slicer trial (Kinston) - sex expression and vine data (cultigens ranked by gynoecious rating).

Rank	Cultivar or line	Seed source	Gyn. rating ^z	Early yield (cwt/A)	Earli- ness (%) ^x	Vine size ^w	Vine color ^w
1	Intimidator	Mon-Seminis	7	162	41	7	7
2	Dasher II	Mon-Seminis	6	166	35	8	7
3	G83xNC-63	NC StateUniv	6	195	46	6	6
4	NC-Sunshine	NC StateUniv	5	197	53	7	6
5	G83xNC-58	NC StateUniv	5	206	41	7	6
6	G83xNC-62	NC StateUniv	5	209	48	7	7
7	Panther	BayerNunhems	5	139	33	7	7
8	General Lee	Clause-HM	4	111	25	7	7
9	NC-Stratford	NC StateUniv	4	279	45	7	7
10	Cherokee 87	Check	4	177	34	8	7
11	Poinsett 76	Cornell Univ	4	98	21	7	7
12	G83xNC-59	NC StateUniv	3	184	37	7	6
13	Marketmore76	Check	3	21	8	6	7
14	Ashley	Check	3	194	35	6	7
	CV (%)		24	29	17	9	13
	Mean		5	167	36	7	7
	LSD (5%)		2	82	10	1	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) = -0.05^{ns}

Table 32. Stage 3 spring slicer trial (Kinston) - 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-Stratford	NC StateUniv	13.5	10.7	5.8	5.2
2	Dasher II	Mon-Seminis	11.3	9.5	5.1	6.1
3	Ashley	Check	10.9	8.9	8.0	7.8
4	G83xNC-59	NC StateUniv	10.7	8.8	8.6	8.3
5	G83xNC-58	NC StateUniv	10.4	8.4	6.5	6.4
6	G83xNC-63	NC StateUniv	10.4	8.5	7.0	6.8
7	Cherokee 87	Check	10.4	8.5	8.9	8.1
8	G83xNC-62	NC StateUniv	10.3	8.4	7.8	7.2
9	Intimidator	Mon-Seminis	10.0	8.4	6.4	7.0
10	Panther	BayerNunhems	9.7	8.1	7.8	8.0
11	NC-Sunshine	NC StateUniv	9.5	7.8	7.9	7.4
12	General Lee	Clause-HM	9.3	7.9	7.3	7.8
13	Poinsett 76	Cornell Univ	8.4	7.1	7.8	8.3
14	Marketmore76	Check	6.2	5.6	10.1	10.6
	CV (%)		13.6	11.7	21.7	19.5
	Mean		10.1	8.3	7.5	7.5
	LSD (5%)		2.3	1.6	2.7	2.5

^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) = 0.90**

Correlation (Marketable yield with ARI1) = -0.46*