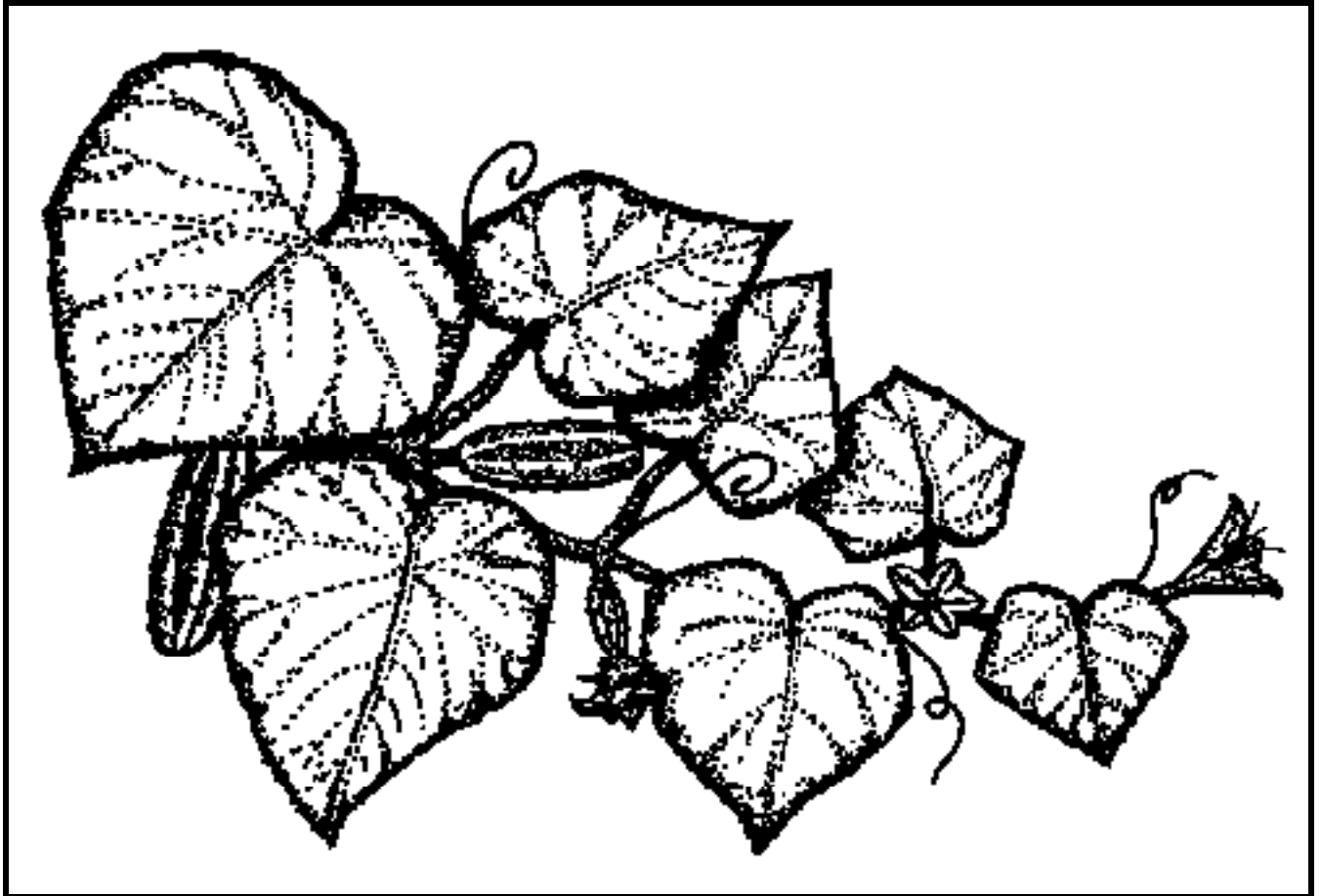


\$5.00

**NC State  
Cucumber  
Trials  
Summary  
2002**



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The authors gratefully acknowledge the assistance of Jimmy Prince and the personnel at the Horticultural Crops Research Station, Clinton, NC for help in planting

maintaining, and harvesting the trials, and to Marie Hall for assembling this report.

### 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")	\$18.30	\$18.30
No.2 (1 1/16 - 1 1/2")	9.55	9.55
No.3 (1 1/2 - 2")	6.45	6.45
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 - 2002

### Spring (Stage 3) Pickle Trial

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#### Introduction

Cucumbers from harvests 2 and 4 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, Sonny Coghill, Lawrence Crocker, Bob Quinn, and Tim Smith (Mt. Olive), Eddie Quill, Rachel Huerta, and Robin Foster (Dean Foods), Curtiss Cates, John Cates, and Duncan Malloy (Addis Cates Co.), and Bill Rankin (Harris Moran).

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. Due to insufficient replication, the bloater data showed few significant differences among cultigens.

#### Summary

- The cultigens with best fruit quality in brinestock were Calypso, RZ-12-65, HMX-0469, Cross Country, and Raleigh.
- The most bloater resistant cultigens were Calypso, RZ-12-65, Vlasstar, SVR04506143, HMX-9466, Cross Country, and Wis. SMR 18.
- 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 Foster, who was the most liberal in quality ratings to Quinn, who was the most conservative. Analysis of variance indicated significant differences among judges for the way they rated fruit quality. However, interaction of judge with cultigen was non-significant (all judges gave good cultigens high ratings, and bad cultigens low ratings).

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<sup>2</sup> 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).<sup>2</sup>

Rank	Cultivar or line	Seed source	Average quality	Shape	Extrnal color	Text- ure	Seed cell	Uniform- ity
1	Calypso	NCStateUniv	6.9	6.9	6.6	6.6	7.0	7.2
2	RZ-12-65	RijkZwaan	6.8	7.1	6.2	6.5	7.3	6.7
3	HMX-0469	HarrisMoran	6.7	6.4	6.6	7.0	6.8	6.8
4	CrossCountry	HarrisMoran	6.6	6.3	6.6	6.5	6.7	6.7
5	Raleigh	NCStateUniv	6.4	6.3	6.8	6.3	6.4	6.4
6	Vlasstar(10489)	Seminis	6.4	6.0	6.8	6.7	6.7	6.0
7	HMX-9466	HarrisMoran	6.4	5.6	6.4	6.9	7.0	6.2
8	Colt	Seminis	6.3	6.4	6.8	5.8	6.0	6.3
9	NC-Duplin(56x57)	NCStateUniv	6.2	6.0	6.8	5.8	5.8	6.5
10	NC-Davie(54x55)	NCStateUniv	6.1	6.2	6.6	6.0	5.5	6.3
11	SRQP-2752	SunSeeds	6.0	5.2	6.7	5.9	6.1	6.0
12	RZ-Componist	RijkZwaan	5.9	5.8	5.9	5.5	6.2	6.3
13	SRQP-2606	SunSeeds	5.9	5.0	6.6	5.8	5.6	6.5
14	SRQP-2860	SunSeeds	5.9	5.2	6.9	5.7	6.1	5.7
15	NC-Dixon(52x53)	NCStateUniv	5.9	5.8	6.4	5.6	5.6	6.0
16	SVR04506143	Seminis	5.8	4.8	6.2	6.4	6.2	5.5
17	Johnston	NCStateUniv	5.8	5.6	6.6	5.7	5.4	5.6
18	EX04504229	Seminis	5.7	4.8	7.0	5.6	5.2	5.9
19	SVR04506116	Seminis	5.5	4.6	6.6	5.6	5.3	5.6
20	Jackson(3540)	SunSeeds	5.5	5.5	6.5	5.0	4.8	5.7
21	Wis.SMR 18	Univ.Wis.	5.4	5.4	5.0	5.3	5.3	5.9
LSD (5%)			0.4	0.7	0.7	0.6	0.7	0.6
Mean			6.1	5.7	6.5	6.0	6.0	6.2
CV (%)			11	20	13	18	20	17

<sup>2</sup> 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) = 0.65\*\*

Correlation (Texture with Seedcell) = 0.84\*\*

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	Calypso	NCStateUniv	0	0	0	0
2	RZ-12-65	RijkZwaan	0	0	0	0
3	Vlasstar(10489)	Seminis	1	0	1	0
4	SVR04506143	Seminis	0	0	0	0
5	HMX-9466	HarrisMoran	0	0	0	0
6	CrossCountry	HarrisMoran	1	0	0	1
7	Wis.SMR 18	Univ.Wis.	1	0	0	1
8	Johnston	NCStateUniv	1	1	0	0
9	NC-Davie(54x55)	NCStateUniv	1	1	1	0
10	NC-Dixon(52x53)	NCStateUniv	2	1	1	1
11	HMX-0469	HarrisMoran	1	1	0	1
12	RZ-Componist	RijkZwaan	2	1	0	1
13	EX04504229	Seminis	3	1	1	1
14	Raleigh	NCStateUniv	1	1	0	0
15	Jackson(3540)	SunSeeds	1	1	0	0
16	Colt	Seminis	2	1	0	1
17	SRQP-2752	SunSeeds	3	1	1	1
18	SRQP-2606	SunSeeds	2	2	1	0
19	SVR04506116	Seminis	2	2	1	0
20	NC-Duplin(56x57)	NCStateUniv	2	2	0	0
21	SRQP-2860	SunSeeds	2	2	0	0
LSD (5%)			3	2	1	1
Mean			1	1	1	1
CV (%)			119	169	223	219

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	RZ-12-65	RijkZwaan	0	0	0	0
2	CrossCountry	HarrisMoran	0	0	0	0
3	Colt	Seminis	0	0	0	0
4	Calypso	NCStateUniv	1	0	1	0
5	Vlasstar(10489)	Seminis	1	0	0	1
6	Johnston	NCStateUniv	1	0	0	1
7	NC-Davie(54x55)	NCStateUniv	1	0	0	1
8	HMX-9466	HarrisMoran	1	1	0	0
9	Raleigh	NCStateUniv	1	0	1	0
10	RZ-Componist	RijkZwaan	1	0	0	1
11	EX04504229	Seminis	1	1	0	1
12	SRQP-2752	SunSeeds	1	1	0	1
13	SVR04506143	Seminis	2	1	0	1
14	HMX-0469	HarrisMoran	2	1	0	1
15	NC-Dixon(52x53)	NCStateUniv	2	0	1	1
16	SRQP-2860	SunSeeds	2	1	0	2
17	Wis.SMR 18	Univ.Wis.	3	0	1	2
18	Jackson(3540)	SunSeeds	3	0	0	3
19	NC-Duplin(56x57)	NCStateUniv	3	2	0	1
20	SRQP-2606	SunSeeds	3	1	0	2
21	SVR04506116	Seminis	4	1	0	3
LSD (5%)			4	2	1	3
Mean			1	1	1	1
CV (%)			130	243	319	148



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

Rank	Cultivar or line	Seed source	Firm- ness (lb.)	Text- ure	Total bloaters & defects	Total bloaters	Bal- loon	Defects
1	HMX-0469	HarrisMoran	19.4	7.0	3	1	1	2
2	Vlasstar(10489)	Seminis	18.6	6.7	1	1	0	1
3	HMX-9466	HarrisMoran	18.4	6.9	1	0	0	1
4	Calyпсо	NCStateUniv	18.2	6.6	1	0	0	1
5	Colt	Seminis	18.2	5.8	2	2	1	0
6	SVR04506143	Seminis	18.1	6.4	2	0	0	2
7	SRQP-2752	SunSeeds	18.1	5.9	4	3	1	1
8	Wis.SMR 18	Univ.Wis.	17.6	5.3	3	1	0	3
9	EX04504229	Seminis	17.6	5.6	4	3	1	1
10	CrossCountry	HarrisMoran	17.1	6.5	1	1	0	0
11	Johnston	NCStateUniv	16.9	5.7	1	1	1	1
12	SVR04506116	Seminis	16.8	5.6	6	2	2	4
13	NC-Davie(54x55)	NCStateUniv	16.4	6.0	2	1	1	1
14	NC-Duplin(56x57)	NCStateUniv	16.4	5.8	4	2	2	3
15	Raleigh	NCStateUniv	16.1	6.3	2	1	1	1
16	SRQP-2860	SunSeeds	15.1	5.7	4	2	2	2
17	RZ-12-65	RijkZwaan	14.7	6.5	0	0	0	0
18	SRQP-2606	SunSeeds	14.3	5.8	5	2	2	3
19	NC-Dixon(52x53)	NCStateUniv	14.3	5.6	3	2	1	2
20	RZ-Componist	RijkZwaan	13.8	5.5	3	2	1	1
21	Jackson(3540)	SunSeeds	13.6	5.0	4	1	1	3
LSD (5%)			2.7	0.6	4	3	2	4
Mean			16.6	6.0	2	1	1	1
CV (%)			8	18	80	119	169	130

<sup>2</sup> Firmness determined by punch-testing (Magness-Taylor) 10 grade 2B fruits.  
Correlation of Texture with: Firmness = 0.54\*\*, Balloon = -0.22  
Correlation of Texture with: Honeycomb = 0.10, Soft centers = -0.52\*\*

Table 5. Brinestock evaluation - quality ratings assigned by the judges (judges are ranked by leniency).<sup>z</sup>

Rank	Judge	Average quality	Shape	External color	Texture	Seed cell	Uniformity
1	Foster	7.4	7.2	8.7	7.9	7.6	5.7
2	Crocker	7.0	6.4	7.6	6.5	7.4	7.1
3	Denlinger	6.8	6.4	7.3	6.6	6.6	7.3
4	Quill	6.5	5.9	6.8	6.8	6.4	6.7
5	Huerta	6.0	5.3	7.0	5.8	6.5	5.7
6	Coghill	6.0	6.1	6.2	5.9	5.9	5.9
7	Rankin	5.9	5.5	6.1	5.8	6.0	6.3
8	Smith	5.9	5.5	6.1	5.5	6.0	6.4
9	Cates,J	5.6	4.9	5.4	5.4	6.0	6.0
10	Malloy	5.5	5.6	5.8	5.6	5.1	5.6
11	Cates,C	5.3	5.5	5.3	5.2	5.2	5.3
12	Quinn	5.1	4.5	5.6	5.3	3.9	6.1

<sup>z</sup> 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 2002

The stage 1 pickle trial was not run this year.

## Observational (Stage 2) Pickling Cucumber Trial 2002

The stage 2 pickle trial was not run this year.

## Spring (Stage 3) Pickling Cucumber Trial 2002

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 18 April, and harvested 6 times (Mondays and Thursdays) between 13 June and 1 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	Colt	Seminis
2	SRQP-2860	SunSeeds
3	Jackson(3540)	SunSeeds
4	NC-Davie(54x55)	NCStateUniv
5	CrossCountry	HarrisMoran
6	Vlasstar(10489)	Seminis
7	EX04504229	Seminis

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	SRQP-2860	SunSeeds	2100	340	14	5	29	38	13	16
2	Jackson(3540)	SunSeeds	2028	347	15	4	27	40	13	24
3	Colt	Seminis	2008	284	13	7	35	38	7	25
4	CrossCountry	HarrisMoran	1977	301	12	6	26	43	13	24
5	SRQP-2606	SunSeeds	1913	296	13	4	33	40	10	25
6	NC-Davie(54x55)	NCStateUniv	1888	292	12	7	27	44	10	26
7	Vlasstar(10489)	Seminis	1820	283	14	5	30	42	9	26
8	SRQP-2752	SunSeeds	1775	281	17	7	29	35	12	24
9	EX04504229	Seminis	1727	240	16	8	36	37	4	23
10	NC-Dixon(52x53)	NCStateUniv	1669	282	14	5	23	45	14	24
11	HMX-0469	HarrisMoran	1621	231	13	9	33	34	11	25
12	Calypso	NCStateUniv	1620	245	11	8	28	39	14	20
13	RZ-Componist	RijkZwaan	1612	257	12	4	24	47	12	24
14	Johnston	NCStateUniv	1583	230	17	7	29	43	4	23
15	SVR04506143	Seminis	1571	242	18	7	29	39	8	24
16	NC-Duplin(56x57)	NCStateUniv	1544	261	13	4	25	43	15	24
17	SVR04506116	Seminis	1480	210	18	8	34	38	3	24
18	HMX-9466	HarrisMoran	1402	231	16	8	28	32	17	25
19	RZ-12-65	RijkZwaan	1163	168	16	7	35	32	8	23
20	Wis.SMR 18	Univ.Wis.	882	168	17	5	20	40	18	23
LSD (5%)			660	105	6	4	7	9	9	4
Mean			1669	259	15	6	29	23	11	23
CV (%)			24	24	25	36	15	14	48	11

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).

Cultivar Rank or line	Seed source	Cumulative fruit value and % of total value <sup>z</sup> (6 harvests) for harvest:									
		<u>1</u>		<u>1-2</u>		<u>1-3</u>		<u>1-4</u>		<u>1-5</u>	
		\$/A	%	\$/A	%	\$/A	%	\$/A	%	\$/A	%
1 Colt	Seminis	658	32	937	46	1149	56	1314	65	1708	84
2 NC-Davie(54x55)	NCStateUniv	501	26	823	43	1131	59	1379	73	1605	85
3 Jackson(3540)	SunSeeds	473	20	779	35	1098	50	1423	66	1695	82
4 SRQP-2860	SunSeeds	481	22	751	35	1164	54	1432	66	1786	85
5 SVR04506143	Seminis	605	38	743	47	1065	67	1177	74	1395	89
6 RZ-Componist	RijkZwaan	504	29	712	42	920	53	1151	70	1399	87
7 SRQP-2606	SunSeeds	524	27	703	36	1102	57	1310	68	1646	86
8 NC-Dixon(52x53)	NCStateUniv	420	23	692	39	919	53	1216	70	1431	85
9 EX04504229	Seminis	497	29	688	40	929	53	1142	66	1384	80
10 Johnston	NCStateUniv	468	30	684	43	895	57	1088	69	1360	86
11 Vlasstar(10489)	Seminis	523	28	658	36	1031	57	1281	70	1513	83
12 NC-Duplin(56x57)	NCStateUniv	403	26	643	42	859	56	1062	69	1334	86
13 SVR04506116	Seminis	488	33	624	42	850	58	921	63	1234	84
14 CrossCountry	HarrisMoran	181	8	588	25	863	39	1302	61	1639	79
15 SRQP-2752	SunSeeds	311	18	564	32	764	43	980	55	1454	82
16 HMX-9466	HarrisMoran	298	22	496	36	681	49	905	65	1162	83
17 HMX-0469	HarrisMoran	291	18	493	31	736	45	999	62	1383	85
18 Calypso	NCStateUniv	152	8	442	26	670	40	944	58	1259	78
19 RZ-12-65	RijkZwaan	223	19	368	31	535	45	686	58	995	87
20 Wis.SMR 18	Univ.Wis.	41	5	179	20	294	33	552	63	708	80
LSD (5%)		260	9	381	12	509	15	595	14	607	10
Mean		402	23	628	36	883	51	1113	65	1404	84
CV (%)		39	24	37	20	35	18	32	13	26	7

Correlation (Fruit value with value in harvests 1 and 2) = 0.90\*\*

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

Rank	Cultivar or line	Seed source	Average quality <sup>z</sup>	Shape <sup>z</sup>	Color <sup>y</sup>	Seed- cell <sup>z</sup>	Overall impres- sion <sup>z</sup>
1	Colt	Seminis	7.8	7	8	8	8
2	HMX-9466	HarrisMoran	7.7	8	8	7	8
3	CrossCountry	HarrisMoran	7.4	8	8	7	7
4	Vlasstar(10489)	Seminis	7.3	7	7	7	8
5	SVR04506116	Seminis	7.2	8	8	7	7
6	SVR04506143	Seminis	7.1	7	6	7	7
7	HMX-0469	HarrisMoran	7.1	7	7	7	7
8	SRQP-2860	SunSeeds	7.1	7	8	7	8
9	Calypto	NCStateUniv	7.0	7	6	7	7
10	Jackson(3540)	SunSeeds	6.9	7	9	6	8
11	EX04504229	Seminis	6.7	7	9	6	7
12	Johnston	NCStateUniv	6.6	6	8	7	7
13	SRQP-2752	SunSeeds	6.4	8	6	5	7
14	RZ-12-65	RijkZwaan	6.3	6	6	7	6
15	NC-Davie(54x55)	NCStateUniv	6.2	7	7	5	7
16	RZ-Componist	RijkZwaan	6.2	7	4	6	6
17	SRQP-2606	SunSeeds	6.0	6	9	6	6
18	NC-Dixon(52x53)	NCStateUniv	5.9	6	8	5	7
19	NC-Duplin(56x57)	NCStateUniv	5.6	6	8	4	7
20	Wis.SMR 18	Univ.Wis.	4.8	6	4	3	5
LSD (5%)			1.2	1	1	2	1
Mean			6.7	7	7	6	7
CV (%)			10.9	12	8	19	12

<sup>z</sup> Quality rated 1 to 9 (1 = poor, 5 = average, 9 = excellent).

<sup>y</sup> Color rated 1 to 9 (1 = white, 5 = medium green, 9 = very dark green).

Correlation (Fruit value with average quality) = 0.18<sup>ns</sup>

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

Rank	Cultivar or line	Seed source	Firm- ness	L/D ratio	Defects1°			Defects2°		
					2	4	6	2	4	6
1	HMX-9466	HarrisMoran	18.7	3.2	K	H	K	K	K	K
2	HMX-0469	HarrisMoran	18.3	3.4	K	K	T	G	K	D
3	SRQP-2752	SunSeeds	18.0	3.2	K	K	M	C	K	T
4	Colt	Seminis	17.7	3.5	G	K	K	K	D	K
5	Jackson(3540)	SunSeeds	17.3	3.3	T	D	H	D	H	N
6	SVR04506116	Seminis	17.0	3.8	G	G	G	K	T	K
7	Vlasstar(10489)	Seminis	16.7	3.4	K	K	D	G	D	K
8	SVR04506143	Seminis	16.3	3.6	K	K	K	G	M	V
9	CrossCountry	HarrisMoran	16.0	3.5	K	K	K	G	K	T
10	Calypso	NCStateUniv	16.0	3.1	K	O	K	T	K	T
11	Wis.SMR 18	Univ.Wis.	16.0	3.1	C	W	W	W	Y	Y
12	EX04504229	Seminis	15.7	3.7	G	G	K	K	K	G
13	Johnston	NCStateUniv	15.7	3.3	T	K	D	C	D	N
14	NC-Davie(54x55)	NCStateUniv	15.3	3.0	K	A	H	K	H	K
15	SRQP-2860	SunSeeds	15.0	3.6	D	K	K	G	D	T
16	RZ-12-65	RijkZwaan	14.7	3.3	A	A	A	V	G	D
17	SRQP-2606	SunSeeds	14.7	2.9	H	H	M	D	D	H
18	NC-Duplin(56x57)	NCStateUniv	14.7	3.1	K	A	D	K	K	T
19	NC-Dixon(52x53)	NCStateUniv	14.3	3.3	H	O	H	K	K	K
20	RZ-Componist	RijkZwaan	13.7	3.3	A	A	A	D	G	C
LSD (5%)			2.8	0.2						
Mean			10.8	3.3						
CV (%)			12.8	5.3						

<sup>z</sup> 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 - fruit keeping ability data (cultigens are ranked by % weight loss).

Rank	Cultivar or line	Seed source	Weight loss (%) <sup>z</sup>	Rating (0 - 9) <sup>y</sup>		Firm- ness (lb.) <sup>x</sup>
				Shriv- eling	Rots & disease	
1	Johnston	NCStateUniv	15	3	1	14
2	SRQP-2752	SunSeeds	16	4	1	14
3	Vlasstar(10489)	Seminis	16	4	2	11
4	SVR04506116	Seminis	16	5	1	12
5	EX04504229	Seminis	16	5	1	14
6	SRQP-2606	SunSeeds	16	4	1	10
7	SVR04506143	Seminis	17	4	3	12
8	Jackson(3540)	SunSeeds	18	3	1	11
9	NC-Davie(54x55)	NCStateUniv	19	3	1	12
10	SRQP-2860	SunSeeds	20	7	3	11
11	Calypso	NCStateUniv	20	4	1	9
12	CrossCountry	HarrisMoran	20	4	1	13
13	Colt	Seminis	21	4	2	15
14	NC-Dixon(52x53)	NCStateUniv	21	4	1	11
15	HMX-9466	HarrisMoran	21	5	2	11
16	HMX-0469	HarrisMoran	22	5	1	12
17	Wis.SMR 18	Univ.Wis.	22	7	3	13
18	RZ-Componist	RijkZwaan	22	5	3	10
19	RZ-12-65	RijkZwaan	24	4	1	14
20	NC-Duplin(56x57)	NCStateUniv	27	3	1	12
LSD (5%)			7	3	2	4
Mean			19	4	2	12
CV (%)			22	39	89	22

<sup>z</sup> After storage at room temperature for 8 days in open kraft paper bags.

<sup>y</sup> Shriveling & disease rated 0-9 (0=none, 1-3=slight, 4-6=moderate, 7-9=advanced).

<sup>x</sup> Firmness after storage using Magness-Taylor fruit punch tester.

Correlation (Weight loss with shriveling) = 0.55\*\*

Correlation (Weight loss with firmness) = -0.39\*\*



Table 11. Stage 3 spring pickle trial - bloater resistance data (cultigens are ranked by bloater resistance).<sup>z</sup>

Rank	Cultivar or line	Seed source	Total bloater damage	Balloon	Lens	Honey- comb
1	Johnston	NCStateUniv	3	0	2	2
2	NC-Dixon(52x53)	NCStateUniv	4	2	0	3
3	Calypso	NCStateUniv	5	0	0	5
4	NC-Duplin(56x57)	NCStateUniv	5	3	0	2
5	RZ-Componist	RijkZwaan	9	6	0	3
6	SVR04506143	Seminis	9	8	0	2
7	Wis.SMR 18	Univ.Wis.	11	7	2	2
8	SVR04506116	Seminis	11	5	6	0
9	Vlasstar(10489)	Seminis	13	8	0	4
10	RZ-12-65	RijkZwaan	13	8	0	5
11	HMX-9466	HarrisMoran	13	10	3	0
12	Colt	Seminis	13	12	0	2
13	HMX-0469	HarrisMoran	14	12	2	0
14	SRQP-2860	SunSeeds	16	14	2	0
15	NC-Davie(54x55)	NCStateUniv	17	10	2	5
16	Jackson(3540)	SunSeeds	17	12	0	5
17	CrossCountry	HarrisMoran	18	15	0	3
18	EX04504229	Seminis	19	13	4	2
19	SRQP-2606	SunSeeds	21	12	2	7
20	SRQP-2752	SunSeeds	22	18	0	3
LSD (5%)			14	13	4	5
Mean			13	9	1	3
CV (%)			65	89	203	107

<sup>z</sup> Data are means of 2 harvests, 5 fruits/cultigen.  
Fruits tested in 5 gal. pails purged with 100% CO<sub>2</sub>.

Table 12. Stage 3 spring pickle trial - bloater resistance data (cultigens are ranked by total bloater + defect resistance).<sup>z</sup>

Rank	Cultivar or line	Seed source	Bloaters + defects	Total bloater damage	Total defects	Blossom -end defects	Placen -tal hollow	Soft center
1	Johnston	NCStateUniv	3	3	0	0	0	0
2	Calypso	NCStateUniv	8	5	3	0	0	3
3	RZ-Componist	RijkZwaan	9	9	0	0	0	0
4	NC-Duplin(56x57	NCStateUniv	10	5	5	0	0	5
5	SVR04506143	Seminis	10	9	1	1	0	0
6	NC-Dixon(52x53)	NCStateUniv	13	4	8	0	2	7
7	Vlasstar(10489)	Seminis	16	13	3	0	2	2
8	RZ-12-65	RijkZwaan	16	13	3	3	0	0
9	HMX-9466	HarrisMoran	17	13	3	0	0	3
10	HMX-0469	HarrisMoran	19	14	5	2	3	0
11	SVR04506116	Seminis	19	11	8	0	7	2
12	CrossCountry	HarrisMoran	20	18	2	0	2	0
13	SRQP-2860	SunSeeds	21	16	5	2	3	0
14	EX04504229	Seminis	22	19	3	0	3	0
15	SRQP-2606	SunSeeds	22	21	1	1	0	0
16	Wis.SMR 18	Univ.Wis.	22	11	12	0	2	10
17	NC-Davie(54x55)	NCStateUniv	23	17	7	2	2	3
18	Jackson(3540)	SunSeeds	23	17	6	0	3	3
19	Colt	Seminis	24	13	11	6	2	3
20	SRQP-2752	SunSeeds	24	22	3	2	1	0
LSD (5%)			16	14	10	3	5	6
Mean			17	13	4	1	2	2
CV (%)			57	65	133	242	205	246

<sup>z</sup> Data are means of 2 harvests, 5 fruits/cultigen.  
Fruits tested in 5 gal. pails purged with 100% CO<sub>2</sub>.

Table 13. Stage 3 spring pickle trial - sex expression and vine data (cultigens are ranked by gynoecious rating).

Rank	Cultivar or line	Seed source	Gyn. rating <sup>z</sup>	Vine size <sup>y</sup>	Vine color <sup>x</sup>
1	RZ-12-65	RijkZwaan	9	8	7
2	RZ-Componist	RijkZwaan	9	7	7
3	SVR04506143	Seminis	9	7	9
4	SRQP-2606	SunSeeds	9	4	9
5	HMX-0469	HarrisMoran	9	6	7
6	SRQP-2860	SunSeeds	9	6	8
7	Vlasstar(10489)	Seminis	8	7	8
8	SRQP-2752	SunSeeds	8	5	9
9	Johnston	NCStateUniv	8	6	8
10	EX04504229	Seminis	8	6	9
11	SVR04506116	Seminis	8	5	9
12	CrossCountry	HarrisMoran	7	7	8
13	Calypso	NCStateUniv	7	6	7
14	Colt	Seminis	7	6	9
15	HMX-9466	HarrisMoran	7	7	7
16	Jackson(3540)	SunSeeds	7	5	9
17	NC-Dixon(52x53)	NCStateUniv	4	6	8
18	NC-Duplin(56x57)	NCStateUniv	3	7	8
19	Wis.SMR 18	Univ.Wis.	3	7	5
20	NC-Davie(54x55)	NCStateUniv	3	6	9
LSD (5%)			2	1	1
Mean			7	6	8
CV (%)			16	15	10

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

<sup>y</sup> Size rated 1 to 9 (1=very small, 9=very large).

<sup>x</sup> Color rated 1 to 9 (1=yellow, 9=very dark green).

Correlation (Yield with gynoecious rating) = 0.09<sup>ns</sup>

Correlation (Yield with vine size) = -0.34\*\*

Table 14. Stage 3 spring pickle trial - disease data (cultigens are ranked by anthracnose rating).<sup>z</sup>

Rank	Cultivar or line	Seed source	Anthracnose rating
1	SRQP-2752	SunSeeds	1.3
2	Johnston	NCStateUniv	1.3
3	NC-Dixon(52x53)	NCStateUniv	1.3
4	HMX-0469	HarrisMoran	1.7
5	CrossCountry	HarrisMoran	1.7
6	NC-Duplin(56x57)	NCStateUniv	1.7
7	SRQP-2860	SunSeeds	2.0
8	Vlasstar(10489)	Seminis	2.3
9	Calypso	NCStateUniv	2.3
10	EX04504229	Seminis	2.7
11	HMX-9466	HarrisMoran	2.7
12	NC-Davie(54x55)	NCStateUniv	3.0
13	RZ-12-65	RijkZwaan	4.0
14	RZ-Componist	RijkZwaan	4.0
15	SRQP-2606	SunSeeds	4.0
16	Colt	Seminis	4.0
17	Jackson(3540)	SunSeeds	4.0
18	SVR04506116	Seminis	5.0
19	SVR04506143	Seminis	5.7
20	Wis.SMR 18	Univ.Wis.	7.7
LSD (5%)			2.0
Mean			3.1
CV (%)			39.6

<sup>z</sup> 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) = -0.23<sup>ns</sup>

Table 15. Stage 3 spring pickle trial - selection indexes (cultigens ranked by SWI1).<sup>z</sup>

Rank	Cultivar or line	Seed source	Simple weighted indexes		Average rank indexes	
			SWI1	SWI2	ARI1	ARI2
1	Colt	Seminis	9.9	8.1	6.6	7.5
2	SRQP-2860	SunSeeds	9.5	8.1	7.6	8.1
3	Jackson(3540)	SunSeeds	9.2	7.8	10.0	9.8
4	NC-Davie(54x55)	NCStateUniv	9.0	7.5	10.1	9.7
5	CrossCountry	HarrisMoran	9.0	7.7	7.6	8.6
6	Vlasstar(10489)	Seminis	8.8	7.5	8.3	8.8
7	EX04504229	Seminis	8.6	7.2	9.8	10.2
8	SRQP-2606	SunSeeds	8.5	7.2	12.0	11.7
9	Johnston	NCStateUniv	8.4	7.2	10.3	9.8
10	NC-Dixon(52x53)	NCStateUniv	8.4	7.2	10.9	10.2
11	SRQP-2752	SunSeeds	8.3	7.2	9.4	8.7
12	SVR04506143	Seminis	8.0	6.8	10.4	10.6
13	HMX-0469	HarrisMoran	8.0	6.9	9.3	9.3
14	RZ-Componist	RijkZwaan	7.9	6.7	12.4	12.3
15	NC-Duplin(56x57)	NCStateUniv	7.9	6.9	12.1	10.9
16	SVR04506116	Seminis	7.8	6.6	10.9	11.3
17	HMX-9466	HarrisMoran	7.7	6.8	9.4	9.4
18	Calypso	NCStateUniv	7.6	6.7	10.6	11.4
19	RZ-12-65	RijkZwaan	6.2	5.5	13.3	13.7
20	Wis.SMR 18	Univ.Wis.	4.2	3.8	19.0	18.2
LSD (5%)			2.3	1.6	4.3	3.9
Mean			8.1	6.9	10.5	10.5
CV (%)			17.0	14.1	24.8	22.3

<sup>z</sup> 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) = 0.95\*\*

Correlation (Yield with ARI1) = -0.58\*\*

## Summer (Stage 4) Pickling Cucumber Trial 2002

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 18 July, and harvested 5 times (Mondays and Thursdays) between 19 August and 6 September.

### 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 10 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	SRQP-2752	SunSeeds
2	Raleigh	NCStateUniv
3	SRQP-2606	SunSeeds
4	HMX-9466	HarrisMoran
5	CrossCountry	HarrisMoran
6	EX04504229	Seminis
7	NC-Dixon(52x53)	NCStateUniv

Table 16. Stage 4 summer 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	SRQP-2752	SunSeeds	324	60	37	6	26	29	2	17
2	SRQP-2606	SunSeeds	319	52	25	7	29	34	6	16
3	CrossCountry	HarrisMoran	291	49	36	7	26	31	0	17
4	Raleigh	NCStateUniv	286	56	29	8	14	38	12	9
5	EX04504229	Seminis	251	47	38	8	23	29	2	17
6	HMX-9466	HarrisMoran	246	39	25	8	24	38	5	17
7	NC-Dixon(52x53)	NCStateUniv	244	57	40	6	13	30	11	16
8	RZ-12-65	RijkZwaan	236	35	33	13	34	20	0	17
9	SRQP-2860	SunSeeds	212	39	34	8	15	37	6	12
10	SVR04506143	Seminis	203	36	34	5	23	34	4	17
11	Jackson(3540)	SunSeeds	188	40	42	6	23	24	5	17
12	HMX-0469	HarrisMoran	186	32	35	8	23	32	2	16
13	NC-Davie(54x55)	NCStateUniv	175	38	48	8	18	17	9	17
14	Calypso	NCStateUniv	166	33	34	7	18	33	8	15
15	RZ-Componist	RijkZwaan	165	33	40	8	18	35	0	17
16	SVR04506116	Seminis	160	25	43	11	31	14	0	16
17	Colt	Seminis	153	31	38	4	8	50	0	17
18	Vlasstar(10489)	Seminis	145	27	39	8	13	39	1	16
19	Johnston	NCStateUniv	119	20	35	9	24	33	0	10
20	NC-Duplin(56x57)	NCStateUniv	105	26	53	6	21	14	5	16
21	Wis.SMR 18	Univ.Wis.	71	14	27	11	45	8	9	13
LSD (5%)			121	21	16	9	13	19	11	4
Mean			202	37	36	8	22	29	4	16
CV (%)			36	34	27	68	35	39	168	14

Correlation (Fruit value with fruit weight) = 0.93\*\*

Table 17. Stage 4 summer 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 <sup>z</sup> (6 harvests) for harvest:									
			<u>1</u>		<u>1-2</u>		<u>1-3</u>		<u>1-4</u>		<u>1-5</u>	
			\$/A	%	\$/A	%	\$/A	%	\$/A	%	\$/A	%
1	SRQP-2752	SunSeeds	196	60	223	69	273	85	285	88	302	93
2	SRQP-2606	SunSeeds	163	51	197	61	271	85	282	89	297	93
3	Raleigh	NCStateUniv	160	56	178	63	225	76	228	77	236	80
4	EX04504229	Seminis	156	60	168	64	225	86	225	86	228	89
5	HMX-9466	HarrisMoran	144	56	166	67	208	83	214	86	221	89
6	CrossCountry	HarrisMoran	142	47	164	57	260	91	260	91	269	94
7	RZ-12-65	RijkZwaan	133	56	159	67	199	84	215	92	215	92
8	NC-Dixon(52x53)	NCStateUniv	114	43	150	57	201	79	204	80	207	81
9	SVR04506143	Seminis	126	62	139	70	188	90	188	90	191	93
10	SRQP-2860	SunSeeds	101	44	130	59	161	74	186	86	193	90
11	Jackson(3540)	SunSeeds	98	51	126	66	154	82	162	86	174	92
12	Colt	Seminis	111	76	119	84	140	93	140	93	140	93
13	RZ-Componist	RijkZwaan	103	62	105	63	144	87	149	90	153	92
14	SVR04506116	Seminis	97	51	103	53	129	72	131	74	141	79
15	HMX-0469	HarrisMoran	87	52	99	56	163	88	163	88	168	90
16	Calypso	NCStateUniv	80	46	98	58	143	84	145	85	145	85
17	Vlasstar(10489)	Seminis	84	56	94	62	120	83	126	85	126	85
18	NC-Davie(54x55)	NCStateUniv	75	36	90	48	131	78	133	80	142	86
19	Johnston	NCStateUniv	55	48	64	56	84	74	84	74	104	87
20	NC-Duplin(56x57)	NCStateUniv	41	38	54	50	80	76	83	79	86	82
21	Wis.SMR 18	Univ.Wis.	28	33	41	63	54	83	58	85	63	88
LSD (5%)			80	19	83	19	107	16	106	14	110	13
Mean			109	52	127	62	169	82	174	85	181	88
CV (%)			44	22	40	19	38	11	36	10	37	9

Correlation (Fruit value with value in harvests 1 and 2) = 0.96\*\*



Table 18. Stage 4 summer pickle trial - fruit quality data (cultigens are ranked by average quality).

Rank	Cultivar or line	Seed source	Average quality <sup>z</sup>	Shape <sup>z</sup>	Color <sup>y</sup>	Seed- cell <sup>z</sup>	Overall impres- sion <sup>z</sup>
1	SVR04506116	Seminis	6.8	7	8	7	7
2	SRQP-2860	SunSeeds	6.7	7	7	6	7
3	Calypso	NCStateUniv	6.6	6	7	7	7
4	Raleigh	NCStateUniv	6.4	7	6	6	7
5	HMX-0469	HarrisMoran	6.4	6	6	8	6
6	Colt	Seminis	6.4	6	6	7	6
7	CrossCountry	HarrisMoran	6.3	6	6	6	6
8	NC-Dixon(52x53)	NCStateUniv	6.2	7	7	5	7
9	SVR04506143	Seminis	6.2	6	6	7	6
10	Jackson(3540)	SunSeeds	6.1	6	8	5	7
11	NC-Davie(54x55)	NCStateUniv	6.1	6	6	6	6
12	EX04504229	Seminis	6.0	6	6	6	6
13	NC-Duplin(56x57)	NCStateUniv	6.0	6	7	6	6
14	SRQP-2752	SunSeeds	5.9	7	7	5	6
15	Johnston	NCStateUniv	5.9	6	8	5	6
16	HMX-9466	HarrisMoran	5.9	6	6	6	6
17	Wis.SMR 18	Univ.Wis.	5.7	6	5	5	6
18	SRQP-2606	SunSeeds	5.6	6	8	5	5
19	Vlasstar(10489)	Seminis	5.3	5	8	6	5
20	RZ-Componist	RijkZwaan	4.8	5	6	5	5
21	RZ-12-65	RijkZwaan	4.7	5	6	5	5
LSD (5%)			1.0	1	2	2	1
Mean			6.0	6	7	6	6
CV (%)			11.0	13	15	17	12

<sup>z</sup> Quality rated 1 to 9 (1 = poor, 5 = average, 9 = excellent).

<sup>y</sup> Color rated 1 to 9 (1 = white, 5 = medium green, 9 = very dark green).

Correlation (Fruit value with average quality) = 0.00<sup>ns</sup>

Table 19. Stage 4 summer pickle trial - other quality data (cultigens are ranked by average quality).<sup>z</sup>

Rank	Cultivar or line	Seed source	Firm- ness	L/D ratio	Defects1°			Defects2°		
					2	4	6	2	4	6
1	SVR04506116	Seminis	17.0	3.3	D	K	K	G	M	G
2	SVR04506143	Seminis	16.7	3.1	D	M	M	T	T	T
3	Calypso	NCStateUniv	16.3	3.1	M	P	H	K	K	K
4	Johnston	NCStateUniv	16.0	2.9	T	D	D	G	K	T
5	Wis.SMR 18	Univ.Wis.	16.0	3.0	W	M	Y	T	T	W
6	Raleigh	NCStateUniv	15.7	3.5	T	T	T	K	K	K
7	Colt	Seminis	15.0	3.4	K	T	T	G	K	K
8	HMX-9466	HarrisMoran	15.0	3.0	D	T	K	K	M	T
9	NC-Duplin(56x57)	NCStateUniv	14.7	3.0	T	W	K	C	D	M
10	SRQP-2860	SunSeeds	14.3	2.8	T	K	K	D	M	M
11	HMX-0469	HarrisMoran	14.3	3.0	M	T	T	D	K	K
12	CrossCountry	HarrisMoran	14.3	3.2	K	W	M	C	T	K
13	RZ-Componist	RijkZwaan	14.3	2.9	O	D	H	C	A	T
14	NC-Davie(54x55)	NCStateUniv	14.0	3.0	C	W	K	K	K	T
15	EX04504229	Seminis	14.0	3.4	G	T	K	D	M	M
16	SRQP-2752	SunSeeds	13.7	2.6	H	D	H	D	W	K
17	Vlasstar(10489)	Seminis	13.7	3.0	C	H	H	V	K	K
18	NC-Dixon(52x53)	NCStateUniv	13.3	2.8	K	T	H	D	K	K
19	Jackson(3540)	SunSeeds	13.0	2.8	K	H	H	C	K	K
20	SRQP-2606	SunSeeds	13.0	2.5	H	H	H	C	K	K
21	RZ-12-65	RijkZwaan	13.0	3.0	H	T	H	W	D	T
LSD (5%)			3.0	0.5						
Mean			14.6	3.0						
CV (%)			12.8	11.9						

<sup>z</sup> 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 20. Stage 4 summer pickle trial - sex expression and vine data (cultigens are ranked by gynoecious rating).

Rank	Cultivar or line	Seed source	Gyn. rating <sup>z</sup>	Vine size <sup>y</sup>	Vine color <sup>x</sup>
1	RZ-Componist	RijkZwaan	9	6	6
2	HMX-0469	HarrisMoran	9	5	7
3	SRQP-2606	SunSeeds	8	3	9
4	SVR04506143	Seminis	8	7	7
5	RZ-12-65	RijkZwaan	8	6	5
6	SRQP-2860	SunSeeds	8	4	9
7	Vlasstar(10489)	Seminis	8	6	7
8	Raleigh	NCStateUniv	8	5	9
9	SRQP-2752	SunSeeds	8	5	8
10	Johnston	NCStateUniv	8	3	8
11	EX04504229	Seminis	7	7	7
12	SVR04506116	Seminis	7	5	7
13	Colt	Seminis	7	6	7
14	Calypso	NCStateUniv	7	5	8
15	NC-Davie(54x55)	NCStateUniv	6	6	5
16	HMX-9466	HarrisMoran	6	6	7
17	CrossCountry	HarrisMoran	6	5	7
18	NC-Dixon(52x53)	NCStateUniv	6	6	7
19	Jackson(3540)	SunSeeds	5	5	9
20	NC-Duplin(56x57)	NCStateUniv	4	5	8
21	Wis.SMR 18	Univ.Wis.	4	6	5
LSD (5%)			3	2	2
Mean			7	5	7
CV (%)			25	22	19

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

<sup>y</sup> Size rated 1 to 9 (1=very small, 9=very large).

<sup>x</sup> Color rated 1 to 9 (1=yellow, 9=very dark green).

Correlation (Yield with gynoecious rating) = 0.32\*

Correlation (Yield with vine size) = 0.02<sup>ns</sup>

Table 21. Stage 4 summer pickle trial - disease data (cultigens are ranked by disease resistance).<sup>z</sup>

Rank	Cultivar or line	Seed source	Average disease	Anthraco- nose	Powdery mildew
1	HMX-0469	HarrisMoran	2.0	2	0
2	SRQP-2752	SunSeeds	2.3	2	0
3	HMX-9466	HarrisMoran	2.3	2	0
4	Johnston	NCStateUniv	2.7	3	0
5	EX04504229	Seminis	2.7	3	0
6	Jackson(3540)	SunSeeds	2.7	3	0
7	Calypso	NCStateUniv	3.0	3	0
8	NC-Dixon(52x53)	NCStateUniv	3.0	3	7
9	SVR04506143	Seminis	3.3	3	0
10	SRQP-2860	SunSeeds	3.3	3	0
11	Vlasstar(10489)	Seminis	3.3	3	0
12	Raleigh	NCStateUniv	3.3	3	0
13	SVR04506116	Seminis	3.3	3	2
14	NC-Davie(54x55)	NCStateUniv	3.3	3	0
15	CrossCountry	HarrisMoran	3.7	4	0
16	SRQP-2606	SunSeeds	3.7	4	5
17	NC-Duplin(56x57)	NCStateUniv	3.7	4	6
18	RZ-12-65	RijkZwaan	4.0	4	0
19	Colt	Seminis	4.0	4	0
20	RZ-Componist	RijkZwaan	6.0	6	0
21	Wis.SMR 18	Univ.Wis.	8.0	8	2
LSD (5%)			1.6	2	2
Mean			3.5	4	1
CV (%)			28.6	29	143

<sup>z</sup> 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. anthracnose rating) = -0.22<sup>ns</sup>

Table 22. Stage 4 summer pickle trial - selection indexes (cultigens ranked by SWI1).<sup>z</sup>

Rank	Cultivar or line	Seed source	Simple weighted indexes		Average rank indexes	
			SWI1	SWI2	ARI1	ARI2
1	SRQP-2752	SunSeeds	4.6	4.8	7.3	7.2
2	Raleigh	NCStateUniv	4.3	4.5	7.7	8.0
3	SRQP-2606	SunSeeds	4.3	4.4	10.5	10.9
4	HMX-9466	HarrisMoran	4.2	4.5	9.5	8.9
5	CrossCountry	HarrisMoran	4.2	4.4	9.1	10.4
6	EX04504229	Seminis	4.2	4.5	9.6	9.8
7	NC-Dixon(52x53)	NCStateUniv	4.2	4.4	9.6	10.1
8	SRQP-2860	SunSeeds	4.2	4.4	8.8	9.9
9	SVR04506116	Seminis	4.1	4.2	9.4	10.3
10	HMX-0469	HarrisMoran	4.1	4.3	9.3	9.8
11	Jackson(3540)	SunSeeds	4.1	4.5	10.3	10.1
12	Calypso	NCStateUniv	4.0	4.3	9.9	10.1
13	SVR04506143	Seminis	4.0	4.4	10.5	9.6
14	Colt	Seminis	3.8	4.4	11.3	11.0
15	NC-Davie(54x55)	NCStateUniv	3.8	4.0	11.8	12.6
16	Johnston	NCStateUniv	3.7	4.1	12.3	12.0
17	Vlasstar(10489)	Seminis	3.6	4.0	14.6	14.0
18	RZ-12-65	RijkZwaan	3.5	3.9	14.0	12.9
19	NC-Duplin(56x57)	NCStateUniv	3.5	3.8	13.5	13.3
20	RZ-Componist	RijkZwaan	3.0	3.4	15.5	14.9
21	Wis.SMR 18	Univ.Wis.	2.6	3.1	16.5	15.6
LSD (5%)			0.6	0.6	4.6	3.9
Mean			3.9	4.2	11.0	11.0
CV (%)			10.1	8.7	25.6	21.8

<sup>z</sup> 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) = 0.76\*\*

Correlation (Yield with ARI1) = -0.56\*\*

# Slicing Cucumbers

## Preliminary (Stage 1) slicing Cucumber Trial 2002

The stage 1 slicer trial was not run this year.

## Observational (Stage 2) slicing Cucumber Trial 2002

The stage 2 slicer trial was not run this year.

## Spring (Stage 3) slicing Cucumber Trial 2002

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 18 April, and harvested 6 times (Mondays and Thursdays) between 17 June and 5 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, and could be advanced to the next stage:

1	NC-Stratford	NCStateUniv
2	Intimidator	Seminis
3	SVR14710464	Seminis
4	SVR14710463	Seminis
5	NC-Sunshine	NCStateUniv
6	SVR14710462	Seminis
7	NC-Star	NCStateUniv

Table 23. 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	Intimidator	Seminis	143	273	31	38	25
2	SVR14710464	Seminis	140	323	34	21	22
3	NC-Stratford	NCStateUniv	117	292	27	33	23
4	SVR14710463	Seminis	117	256	32	29	21
5	SRQS-2387	SunSeeds	109	254	28	37	16
6	SRQS-2389	SunSeeds	96	292	21	35	19
7	NC-Sunshine	NCStateUniv	95	222	27	36	24
8	SVR14710461	Seminis	94	254	21	42	20
9	SVR14710462	Seminis	92	250	25	31	19
10	SRQS-2983	SunSeeds	79	244	23	30	21
11	SVR14710465	Seminis	74	174	33	22	12
12	NC-Star	NCStateUniv	73	207	18	46	24
13	HMX-8416	HarrisMoran	64	205	20	35	14
14	EX4675858	Seminis	62	176	22	37	19
15	Poinsett76	CornellUniv	56	197	23	18	16
16	DasherII	Seminis	56	226	18	26	21
17	EX4675898	Seminis	52	169	19	40	21
18	NC-Sapphire	NCStateUniv	44	220	14	32	20
LSD (5%)			61	95	13	13	6
Mean			87	235	24	33	20
CV (%)			42	24	34	24	18

Correlation (Marketable yield with % culls) = -0.09\*

Table 24. 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	Seminis	30	9	92	30	124	41	166	59	184	68
2	NC-Stratford	NCStateUniv	39	14	91	31	149	50	222	75	251	86
3	NC-Star	NCStateUniv	49	24	82	40	109	54	150	72	192	93
4	NC-Sunshine	NCStateUniv	21	10	72	33	89	41	172	77	206	93
5	SVR14710461	Seminis	10	3	66	27	90	36	175	70	232	92
6	EX4675898	Seminis	21	13	60	37	82	50	95	57	144	85
7	SVR14710462	Seminis	4	1	60	22	100	39	154	61	202	80
8	HMX-8416	HarrisMoran	4	1	44	18	57	25	118	54	172	85
9	SVR14710463	Seminis	6	1	43	12	57	19	147	58	203	80
10	DasherII	Seminis	5	2	42	18	61	27	115	51	169	75
11	EX4675858	Seminis	11	6	39	20	55	28	94	58	129	77
12	SVR14710464	Seminis	5	1	36	10	66	21	172	53	255	78
13	SRQS-2387	SunSeeds	2	1	29	9	48	16	123	43	202	77
14	SRQS-2389	SunSeeds	7	3	24	8	53	18	142	49	239	82
15	NC-Sapphire	NCStateUniv	2	1	20	9	82	35	139	64	180	81
16	SRQS-2983	SunSeeds	1	0	13	5	38	16	115	45	200	82
17	SVR14710465	Seminis	0	0	13	9	23	16	98	57	145	84
18	Poinsett76	CornellUniv	0	0	1	0	18	9	50	25	139	71
LSD (5%)			21	9	45	14	56	18	69	19	84	15
Mean			12	5	46	19	72	30	135	57	191	82
CV (%)			107	102	59	46	46	35	31	20	26	11

Correlation (Marketable yield with yield in harvests 1-2) = 0.54\*\*

Correlation (Marketable yield with % of yield in harvests 1-2) = 0.16<sup>ns</sup>



Table 25. Stage 3 spring slicer trial - fruit quality data (cultigens ranked by average quality).<sup>z</sup>

Rank	Cultivar or line	Seed source	Average quality	Shape	Color	Seed- cell	Overall impression
1	SVR14710463	Seminis	7.9	8	9	8	8
2	Poinsett76	CornellUniv	7.6	8	9	8	7
3	SVR14710462	Seminis	7.6	8	9	8	7
4	DasherII	Seminis	7.4	8	8	6	8
5	SVR14710464	Seminis	7.4	8	8	7	7
6	HMX-8416	HarrisMoran	7.2	7	7	7	7
7	SRQS-2389	SunSeeds	7.1	7	7	7	7
8	NC-Sunshine	NCStateUniv	7.1	7	9	8	7
9	NC-Stratford	NCStateUniv	6.6	6	8	6	7
10	SVR14710461	Seminis	6.6	7	8	6	7
11	EX4675898	Seminis	6.3	7	8	6	6
12	SRQS-2387	SunSeeds	6.3	7	8	6	7
13	EX4675858	Seminis	6.2	6	7	6	6
14	SVR14710465	Seminis	6.1	7	8	5	7
15	SRQS-2983	SunSeeds	5.9	6	8	5	6
16	Intimidator	Seminis	5.7	6	7	6	6
17	NC-Sapphire	NCStateUniv	5.6	6	8	6	5
18	NC-Star	NCStateUniv	5.4	6	9	5	6
LSD (5%)			1.3	2	1	1	2
Mean			6.6	7	8	6	7
CV (%)			12.5	18	10	14	15

<sup>z</sup> 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) = 0.07<sup>ns</sup>

Table 26. Stage 3 spring slicer trial - fruit dimensions and comments (cultigens ranked by average quality rating).<sup>z</sup>

Rank	Cultivar or line	Seed source	Length (0.1")	Diameter (0.1")	Wt. (lb.)	Defect1°			Defect2°		
						2	4	6	2	4	6
1	SVR14710463	Seminis	9.1	2.2	0.89	T	K	K	K	C	H
2	Poinsett76	CornellUniv	7.4	2.2	0.75	H	H	H	K	K	K
3	SVR14710462	Seminis	9.1	2.3	1.05	K	K	H	K	T	K
4	DasherII	Seminis	9.0	2.2	0.98	T	K	K	K	H	K
5	SVR14710464	Seminis	9.6	2.2	1.02	K	T	K	T	M	K
6	HMX-8416	HarrisMoran	9.7	2.2	1.02	T	G	G	K	R	T
7	SRQS-2389	SunSeeds	9.4	2.3	1.08	M	K	K	H	T	H
8	NC-Sunshine	NCStateUniv	8.6	2.3	0.96	K	K	H	T	D	D
9	NC-Stratford	NCStateUniv	9.7	2.4	1.26	H	O	K	K	H	H
10	SVR14710461	Seminis	9.9	2.1	1.16	D	C	D	K	K	C
11	EX4675898	Seminis	9.0	2.2	0.92	T	T	T	K	G	H
12	SRQS-2387	SunSeeds	9.0	2.2	0.94	H	K	C	T	G	T
13	EX4675858	Seminis	9.5	2.3	0.98	T	T	T	D	G	K
14	SVR14710465	Seminis	8.5	2.1	0.85	K	S	H	T	T	K
15	SRQS-2983	SunSeeds	9.6	2.2	0.95	C	T	T	T	G	G
16	Intimidator	Seminis	9.4	2.2	1.01	D	M	H	M	T	T
17	NC-Sapphire	NCStateUniv	8.1	2.3	0.88	H	H	H	T	K	K
18	NC-Star	NCStateUniv	8.6	2.3	0.98	H	H	K	D	C	H
LSD (5%)			0.6	0.2	0.16						
Mean			9.1	2.2	0.98						
CV (%)			4.3	5.0	9.87						

<sup>z</sup> 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 27. Stage 3 spring slicer trial - fruit keeping ability data (cultigens are ranked by % weight loss).

Rank	Cultivar or line	Seed source	Weight loss (%) <sup>Z</sup>	Rating (0 - 9) <sup>Y</sup>		Firm- ness (lb.) <sup>X</sup>
				Shriv- eling	Rots & disease	
1	SVR14710463	Seminis	14	2	1	18
2	Poinsett76	CornellUniv	12	2	1	13
3	SVR14710462	Seminis	15	3	2	18
4	DasherII	Seminis	12	2	1	18
5	SVR14710464	Seminis	15	3	1	19
6	HMX-8416	HarrisMoran	16	2	1	16
7	SRQS-2389	SunSeeds	12	5	3	17
8	NC-Sunshine	NCStateUniv	15	3	1	15
9	NC-Stratford	NCStateUniv	15	3	1	15
10	SVR14710461	Seminis	17	4	4	18
11	EX4675898	Seminis	16	5	3	20
12	SRQS-2387	SunSeeds	20	5	4	14
13	EX4675858	Seminis	16	4	2	17
14	SVR14710465	Seminis	15	2	1	17
15	SRQS-2983	SunSeeds	17	3	1	19
16	Intimidator	Seminis	15	3	2	20
17	NC-Sapphire	NCStateUniv	15	2	2	14
18	NC-Star(64x6	NCStateUniv	16	2	1	15
LSD (5%)			7	2	2	4
Mean			15	3	2	17
CV (%)			27	46	77	15

<sup>Z</sup> After storage at room temperature for 8 days in open kraft paper bags.

<sup>Y</sup> Shriveling & disease rated 0-9 (0=none, 1-3=slight, 4-6=moderate, 7-9=advanced).

<sup>X</sup> Firmness after storage using Magness-Taylor fruit punch tester.

Correlation (Weight loss with shriveling) = 0.17\*

Correlation (Weight loss with firmness) = -0.02<sup>ns</sup>

Table 28. Stage 3 spring slicer trial - sex expression and vine data (cultigens ranked by gynoecious rating).

Rank	Cultivar or line	Seed source	Gyn. rating <sup>z</sup>	Early yield (cwt/A)	Earli- ness (%) <sup>x</sup>	Vine size <sup>w</sup>	Vine color <sup>w</sup>
1	EX4675898	Seminis	9	60	37	8	8
2	HMX-8416	HarrisMoran	9	44	18	7	7
3	SVR14710462	Seminis	9	60	22	7	8
4	SVR14710461	Seminis	8	66	27	9	8
5	Intimidator	Seminis	8	92	30	8	8
6	EX4675858	Seminis	8	39	20	7	8
7	SVR14710464	Seminis	8	36	10	8	9
8	SRQS-2389	SunSeeds	8	24	8	7	9
9	SRQS-2387	SunSeeds	8	29	9	6	8
10	DasherII	Seminis	7	42	18	6	9
11	SVR14710465	Seminis	7	13	9	6	9
12	SRQS-2983	SunSeeds	7	13	5	6	8
13	SVR14710463	Seminis	6	43	12	8	9
14	NC-Sunshine	NCStateUniv	4	72	33	5	7
15	Poinsett76	CornellUniv	4	1	0	5	9
16	NC-Star	NCStateUniv	4	82	40	5	7
17	NC-Stratford	NCStateUniv	3	91	31	6	8
18	NC-Sapphire	NCStateUniv	3	20	9	6	6
LSD (5%)			2	45	14	1	1
Mean			7	46	19	7	8
CV (%)			21	59	46	10	10

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

<sup>y</sup> Early yield is weight of Fancy+No.1 grade fruit produced in harvests 1 and 2.

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

<sup>w</sup>Vine size & color are rated 1 (small or yellow green) to 9 (large or dark green).

Correlation (Marketable yield with gynoecious rating) = -0.02<sup>ns</sup>

Table 29. Stage 3 spring slicer trial - disease ratings (cultigens ranked by anthracnose resistance).<sup>z</sup>

Rank	Cultivar or line	Seed source	Anthrac- nose
1	Poinsett76	CornellUniv	1.3
2	HMX-8416	HarrisMoran	1.7
3	DasherII	Seminis	1.7
4	NC-Stratford	NCStateUniv	1.7
5	NC-Star	NCStateUniv	2.0
6	NC-Sapphire	NCStateUniv	2.0
7	SVR14710464	Seminis	2.3
8	SVR14710463	Seminis	2.3
9	EX4675858	Seminis	3.0
10	SRQS-2389	SunSeeds	3.0
11	SRQS-2387	SunSeeds	3.0
12	NC-Sunshine	NCStateUniv	3.0
13	SVR14710462	Seminis	3.3
14	SVR14710465	Seminis	3.3
15	SRQS-2983	SunSeeds	3.3
16	Intimidator	Seminis	3.7
17	EX4675898	Seminis	4.3
18	SVR14710461	Seminis	5.0
LSD (5%)			1.6
Mean			2.7
CV (%)			35.2

<sup>z</sup> 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 anthracnose rating) = -0.27\*

Table 30. Stage 3 spring slicer trial - selection indexes (cultigens ranked by SWI1).<sup>z</sup>

Rank	Cultivar or line	Seed source	Simple weighted indexes		Average rank indexes	
			SWI1	SWI2	ARI1	ARI2
1	NC-Stratford	NCStateUniv	6.9	6.3	7.2	6.4
2	Intimidator	Seminis	6.6	5.9	10.6	9.8
3	SVR14710464	Seminis	6.6	6.0	6.8	7.1
4	SVR14710463	Seminis	6.4	5.8	5.9	7.1
5	NC-Sunshine	NCStateUniv	6.2	5.7	7.8	8.3
6	SVR14710462	Seminis	6.1	5.6	7.4	8.3
7	NC-Star	NCStateUniv	5.8	5.4	11.0	9.5
8	SVR14710461	Seminis	5.7	5.2	10.2	10.1
9	SRQS-2387	SunSeeds	5.5	5.1	10.1	10.3
10	DasherII	Seminis	5.5	5.2	7.7	7.6
11	SRQS-2389	SunSeeds	5.5	5.2	9.1	9.3
12	HMX-8416	HarrisMoran	5.5	5.1	7.9	8.2
13	Poinsett76	CornellUniv	5.0	4.7	8.4	9.4
14	EX4675898	Seminis	4.9	4.7	11.9	11.5
15	EX4675858	Seminis	4.9	4.6	11.4	11.2
16	SRQS-2983	SunSeeds	4.7	4.4	12.5	12.1
17	SVR14710465	Seminis	4.5	4.3	12.3	12.9
18	NC-Sapphire	NCStateUniv	4.5	4.2	12.8	12.0
LSD (5%)			1.5	1.2	3.7	3.7
Mean			5.6	5.1	9.5	9.5
CV (%)			17.1	15.0	23.9	23.6

<sup>z</sup> 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) = 0.80\*\*

Correlation (Marketable yield with ARI1) = -0.40\*\*

## Summer (Stage 4) Slicing Cucumber Trial 2002

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 8 July, and harvested 4 times (Mondays and Thursdays) between 22 August through 9 September.

### 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	Dasher II	Seminis
2	SVR14710464	Seminis
3	Intimidator	Seminis
4	EX4675858	Seminis

Table 31. Stage 4 summer 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	DasherII	Seminis	25	40	32	33	11
2	SRQS-2983	SunSeeds	16	36	35	37	10
3	SVR14710464	Seminis	15	26	38	35	12
4	EX4675858	Seminis	12	27	24	46	10
5	SRQS-2389	SunSeeds	10	17	33	39	9
6	Intimidator	Seminis	9	26	27	42	11
7	NC-Sapphire	NCStateUniv	9	20	26	34	9
8	NC-Stratford	NCStateUniv	9	14	32	55	11
9	HMX-8416	HarrisMoran	6	10	23	46	13
10	NC-Sunshine	NCStateUniv	6	10	38	43	7
11	SRQS-2387	SunSeeds	5	15	19	34	12
12	NC-Star	NCStateUniv	2	3	29	60	11
LSD (5%)			16	25	37	29	6
Mean			10	20	30	42	11
CV (%)			95	75	73	41	36

Correlation (Marketable yield with % culls) = -0.37\*



Table 32. Stage 4 summer 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	SRQS-2983	SunSeeds	7	15	18	46	20	49	23	56	26	67
2	DasherII	Seminis	12	33	15	44	17	48	23	60	27	72
3	Intimidator	Seminis	14	56	15	57	16	59	16	59	22	75
4	EX4675858	Seminis	8	32	11	40	11	40	13	44	16	52
5	NC-Stratford	NCStateUniv	8	54	10	70	12	78	13	87	13	91
6	SVR14710464	Seminis	1	6	9	25	11	32	14	40	17	55
7	SRQS-2389	SunSeeds	4	25	7	44	7	44	7	44	10	65
8	SRQS-2387	SunSeeds	4	28	6	41	6	41	8	55	9	64
9	NC-Sapphire	NCStateUniv	0	0	5	29	7	34	9	53	14	78
10	NC-Sunshine	NCStateUniv	4	16	5	19	5	19	5	36	10	67
11	HMX-8416	HarrisMoran	2	23	5	48	5	52	6	54	6	63
12	NC-Star	NCStateUniv	0	0	0	0	0	0	0	8	1	42
LSD (5%)			10	27	13	40	15	41	18	43	21	53
Mean			5	24	9	39	10	41	11	50	14	66
CV (%)			106	66	89	61	92	59	93	51	89	47
Correlation (Marketable yield with yield in harvests 1-2)										= 0.91**		
Correlation (Marketable yield with % of yield in harvests 1-2)										= 0.22 <sup>ns</sup>		

Table 33. Stage 4 summer slicer trial - fruit quality data (cultigens ranked by average quality).<sup>z</sup>

Rank	Cultivar or line	Seed source	Average quality	Shape	Color	Seed- cell	Overall impression
1	HMX-8416	HarrisMoran	7.2	7	8	8	7
2	SVR14710464	Seminis	7.2	7	8	8	7
3	NC-Stratford	NCStateUniv	6.8	7	8	7	7
4	DasherII	Seminis	6.7	7	8	7	6
5	NC-Sunshine	NCStateUniv	6.6	6	7	7	7
6	Intimidator	Seminis	6.4	6	8	7	6
7	EX4675858	Seminis	6.2	6	7	6	6
8	SRQS-2389	SunSeeds	6.0	6	8	6	6
9	NC-Sapphire	NCStateUniv	5.9	5	7	7	5
10	SRQS-2387	SunSeeds	5.8	5	8	7	6
11	SRQS-2983	SunSeeds	5.6	5	8	6	5
12	NC-Star	NCStateUniv	5.2	5	8	6	5
LSD (5%)			1.3	1	1	2	1
Mean			6.2	6	8	7	6
CV (%)			12.5	12	7	18	14

<sup>z</sup> 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) = 0.07<sup>ns</sup>

Table 34. Stage 4 summer slicer trial - fruit dimensions and comments (cultigens ranked by average quality rating).<sup>z</sup>

Rank	Cultivar or line	Seed source	Length (0.1")	Diameter (0.1")	Wt. (lb.)	Defect1°			Defect2°		
						2	4	6	2	4	6
1	HMX-8416	HarrisMoran	6.4	1.8	0.43	K	C	H	C	K	K
2	SVR14710464	Seminis	6.3	1.6	0.48	T	K	K	M	C	H
3	NC-Stratford	NCStateUniv	6.2	1.8	0.48	K	K	H	D	H	T
4	DasherII	Seminis	6.6	1.9	0.50	H	H	K	K	K	H
5	NC-Sunshine	NCStateUniv	6.9	1.9	0.45	H	K	K	T	T	T
6	Intimidator	Seminis	6.7	1.8	0.54	H	H	H	T	K	K
7	EX4675858	Seminis	6.8	1.7	0.46	H	H	K	K	T	K
8	SRQS-2389	SunSeeds	5.8	1.8	0.42	H	K	K	D	H	H
9	NC-Sapphire	NCStateUniv	5.8	1.7	0.50	P	H	H	D	K	D
10	SRQS-2387	SunSeeds	5.6	1.7	0.37	H	K	K	K	H	H
11	SRQS-2983	SunSeeds	6.9	1.8	0.50	M	H	T	D	K	D
12	NC-Star	NCStateUniv	5.2	1.5	0.47	H	H	H	D	T	T
LSD (5%)			1.0	0.2	0.15						
Mean			6.2	1.7	0.46						
CV (%)			9.6	9.2	19.81						

<sup>z</sup> 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 35. Stage 4 summer slicer trial - sex expression and vine data (cultigens ranked by gynoecious rating).

Rank	Cultivar or line	Seed source	Gyn. rating <sup>z</sup>	Early yield (cwt/A)	Earli- ness (%) <sup>x</sup>	Vine size <sup>w</sup>	Vine color <sup>w</sup>
1	Intimidator	Seminis	9	15	57	7	7
2	SRQS-2389	SunSeeds	9	7	44	6	8
3	HMX-8416	HarrisMoran	9	5	48	6	7
4	SRQS-2983	SunSeeds	9	18	46	7	7
5	SRQS-2387	SunSeeds	8	6	41	6	8
6	EX4675858	Seminis	7	11	40	7	7
7	SVR14710464	Seminis	7	9	25	6	7
8	DasherII	Seminis	7	15	44	6	8
9	NC-Sunshine	NCStateUniv	6	5	19	4	8
10	NC-Sapphire	NCStateUniv	3	5	29	6	7
11	NC-Stratford	NCStateUniv	3	10	70	6	6
12	NC-Star	NCStateUniv	2	0	0	4	7
LSD (5%)			2	13	40	1	1
Mean			7	9	39	6	7
CV (%)			19	89	61	14	10

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

<sup>y</sup> Early yield is weight of Fancy+No.1 grade fruit produced in harvests 1 and 2.

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

<sup>w</sup> Vine size & color are rated 1 (small or yellow green) to 9 (large or dark green).

Correlation (Marketable yield with gynoecious rating) = 0.25<sup>ns</sup>

Table 36. Stage 4 summer slicer trial - disease ratings (cultigens ranked by average disease resistance).<sup>z</sup>

Rank	Cultivar or line	Seed source	Average disease	Anthraco- nose	Powdery mildew
1	EX4675858	Seminis	0.8	2	0
2	Intimidator	Seminis	1.0	2	0
3	SRQS-2983	SunSeeds	1.8	2	1
4	HMX-8416	HarrisMoran	1.8	4	0
5	SVR14710464	Seminis	2.0	3	1
6	SRQS-2387	SunSeeds	2.0	3	1
7	DasherII	Seminis	2.7	3	2
8	NC-Sapphire	NCStateUniv	3.3	4	3
9	NC-Star	NCStateUniv	3.5	5	2
10	SRQS-2389	SunSeeds	3.7	3	5
11	NC-Sunshine	NCStateUniv	4.3	4	4
12	NC-Stratford	NCStateUniv	5.2	4	6
	LSD (5%)		2.2	1	4
	Mean		2.6	3	2
	CV (%)		49.3	24	109

<sup>z</sup> 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 anthracnose rating) = -0.34\*\*

Table 37. Stage 4 summer slicer trial - selection indexes (cultigens ranked by SWI1).<sup>z</sup>

Rank	Cultivar or line	Seed source	Simple weighted indexes		Average rank indexes	
			SWI1	SWI2	ARI1	ARI2
1	DasherII	Seminis	3.9	4.2	5.2	5.4
2	SVR14710464	Seminis	3.9	4.0	4.7	5.3
3	Intimidator	Seminis	3.9	4.4	5.0	4.4
4	EX4675858	Seminis	3.8	4.1	5.7	5.1
5	HMX-8416	HarrisMoran	3.7	4.2	5.7	5.9
6	SRQS-2983	SunSeeds	3.7	4.0	6.3	5.8
7	NC-Stratford	NCStateUniv	3.3	4.1	5.8	6.4
8	SRQS-2387	SunSeeds	3.3	3.7	7.6	7.2
9	SRQS-2389	SunSeeds	3.2	3.7	6.6	6.6
10	NC-Sapphire	NCStateUniv	3.2	3.4	7.6	7.5
11	NC-Sunshine	NCStateUniv	3.1	3.2	7.4	8.0
12	NC-Star	NCStateUniv	2.8	2.6	10.4	10.4
	LSD (5%)		0.6	0.8	3.3	2.8
	Mean		3.4	3.8	6.5	6.5
	CV (%)		9.8	12.2	30.2	25.1

<sup>z</sup> 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) = 0.68\*\*

Correlation (Marketable yield with ARI1) = -0.51\*\*