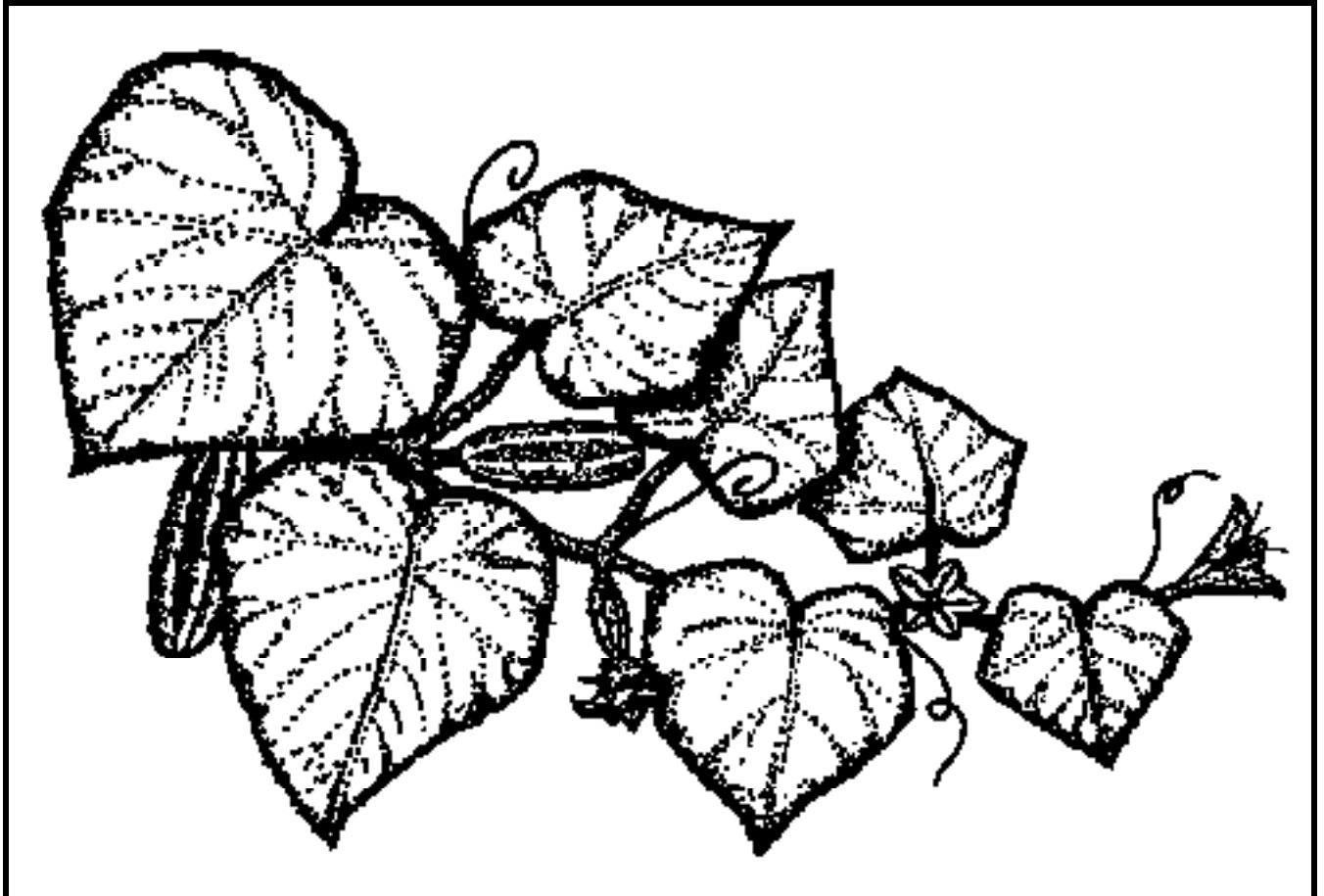


\$5.00

NC State Cucumber Trials 2003



Todd C. Wehner
Professor

Tammy L. Ellington
Agric. Res. Tech. III

**Department of Horticultural Science
North Carolina State University
Raleigh, NC 27695-7609**

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")	\$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.

Please direct correspondence to:

Todd C. Wehner, Professor
 Department of Horticultural Science
 North Carolina State University
 Raleigh, NC 27695-7609
 Phone: 919.515.5363
 Fax: 919.515.2505
 EMail: todd_wehner@ncsu.edu
 Web: <http://cuke.hort.ncsu.edu/>

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Pickling Cucumbers

Brinestock Evaluation - 2003

Spring (Stage 3) Pickle Trial

Todd C. Wehner and Tammy L. Ellington²
 Department of Horticultural Science
 North Carolina State University

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, Bob Quinn, Tim Smith, and Nick Flores (Mt. Olive), Eddie Quill, JW Jackson, and Harry Newsome (Dean Foods), Curtiss Cates and John Cates, (Addis Cates Co.), Chris Ware (Harris Moran), and Mike Cain (Sunseeds).

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-Davie, H-19, G5xNC-54, NC-Duplin, NC-Linda, G5xNC-55, SRQP-2982, Raleigh, G5xNC-57, and SRQP-3146.
- Most cultigens were bloater resistant due to a low incidence of bloaters.
- The firmest cultigens were NC-Lexington (parthenocarpic), NC-Linda, H-19, NC-Longhurst, NC-Lexington, NC-Davie, G5xNC-57, and G4xNC-57.
- 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 Apol who assigned the highest quality ratings to Ware 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 (all judges gave good cultigens high ratings, and bad cultigens low ratings).

² Thanks to Mt. Olive Pickle Co., Mt. Olive, N.C. for assistance in brining the cucumbers, and for providing the facilities for evaluating the cultigens tested. Thanks also to the personnel at the Horticultural Crops Research Station, Clinton, N.C. for help in running the field trials.

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

Rank	Cultivar or line	Seed source	Average quality	Shape	Extrnal color	Text- ure	Seed cell	Uniform- ity
1	Davie(54x55)	02GH1616x1617	5.6	5.2	5.5	6.0	5.9	5.5
2	H-19	Seminis	5.6	5.9	5.4	5.3	5.4	6.1
3	G5xNC-54	02GH938x852	5.6	5.3	4.9	6.0	6.1	5.8
4	Duplin(56x57)	02GH1618x1619	5.5	5.1	5.6	5.8	5.6	5.7
5	Linda(67x69)	02GH1608x161	5.5	4.9	6.3	4.9	5.3	5.9
6	G5xNC-55	02GH1627x1630	5.4	5.1	6.0	5.2	5.2	5.8
7	SRQP-2982	SunSeeds	5.4	5.3	6.0	4.9	5.1	5.7
8	Raleigh	NCState Univ.	5.4	5.2	5.6	5.5	5.2	5.4
9	G5xNC-57	02GH1628x1631	5.4	5.0	5.6	5.4	5.3	5.6
10	SRQP-3146	SunSeeds	5.4	5.2	6.3	4.9	5.0	5.5
11	SRQP-2860	SunSeeds	5.3	4.7	6.0	5.3	5.4	5.4
12	Lexingtn66x69	02GH1607x1610	5.3	5.2	5.3	5.3	5.2	5.6
13	LexingtonPrth	02GH1607x1610	5.3	5.2	4.1	5.4	5.6	6.2
14	HMX-2478	Harris Moran	5.3	4.8	5.4	5.3	5.4	5.4
15	M 21	NCState Univ.	5.3	4.6	5.7	5.0	5.6	5.4
16	Johnston	NCState Univ.	5.3	4.5	5.8	5.4	5.4	5.2
17	Longhrst68x69	02GH1609x1610	5.2	4.8	5.7	4.8	5.1	5.8
18	G4xNC-57	02GH932x941	5.2	4.8	5.3	5.2	5.1	5.4
19	HMX-1477	Harris Moran	5.2	4.6	5.7	5.0	5.4	5.1
20	Napoleon	SunSeeds	5.1	4.6	5.7	5.1	5.1	5.1
21	G5xNC-52	02GH1626x1629	5.1	4.8	6.0	4.4	4.7	5.8
22	SRQP-2752	SunSeeds	5.1	4.6	5.5	5.3	5.3	4.9
23	HMX-2479	Harris Moran	5.1	4.9	5.3	4.9	5.0	5.4
24	G4xNC-53	02GH1621x1624	5.1	4.6	5.4	5.1	4.8	5.3
25	SVR4506143	Seminis	5.0	4.2	5.0	5.3	5.1	5.4
26	G4xNC-56	02GH1622x1625	5.0	4.5	4.7	5.3	4.9	5.4
27	G4xNC-52	02GH1620x1623	4.8	3.9	4.9	5.3	4.8	5.4
28	Moriah(71x73)	02GH1584x1585	4.8	3.8	6.1	4.8	4.4	4.9
29	Merritt(70x72)	02GH1582x1583	4.7	3.4	6.2	4.5	4.5	4.9
30	Calypso	NCState Univ.	4.7	4.5	4.6	4.8	4.5	5.1
31	Wis.SMR 18	Univ. Wis.	4.2	3.9	3.5	4.6	4.6	4.4
LSD (5%)			0.4	0.6	0.5	0.6	0.6	0.5
Mean			5.2	4.7	5.4	5.2	5.2	5.4
CV (%)			16	26	18	24	26	21

² Quality rated 1 to 9 (9=A+, 8=A, 7=A-, 6=B+, 5=B, 4=B-, 3=C, 2=D, 1=F).
Correlation (Shape with Uniformity) = 0.80**
Correlation (Texture with Seedcell) = 0.94**

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	G5xNC-55	02GH1627x1630	0	0	0	0
2	LexingtonPrth	02GH1607x1610	0	0	0	0
3	G4xNC-53	02GH1621x1624	0	0	0	0
4	G4xNC-56	02GH1622x1625	0	0	0	0
5	M 21	NCState Univ.	0	0	0	0
6	Duplin(56x57)	02GH1618x1619	0	0	0	0
7	Merritt(70x72)	02GH1582x1583	0	0	0	0
8	Linda(67x69)	02GH1608x161	1	0	0	1
9	H-19	Seminis	1	0	0	1
10	SRQP-2752	SunSeeds	1	0	0	1
11	Davie(54x55)	02GH1616x1617	0	0	0	0
12	Lexingtn66x69	02GH1607x1610	0	0	0	0
13	Johnston	NCState Univ.	0	0	0	0
14	Moriah(71x73)	02GH1584x1585	0	0	0	0
15	Wis.SMR 18	Univ. Wis.	0	0	0	0
16	G5xNC-57	02GH1628x1631	0	0	0	0
17	G4xNC-57	02GH932x941	0	0	0	0
18	G4xNC-52	02GH1620x1623	0	0	0	0
19	Longhrst68x69	02GH1609x1610	1	0	0	0
20	Calypso	NCState Univ.	1	0	0	0
21	G5xNC-54	02GH938x852	1	1	0	0
22	Raleigh	NCState Univ.	1	1	0	0
23	Napoleon	SunSeeds	1	1	1	0
24	SVR4506143	Seminis	1	1	1	0
25	HMX-2478	Harris Moran	2	1	1	0
26	G5xNC-52	02GH1626x1629	1	1	0	0
27	SRQP-2982	SunSeeds	1	1	0	0
28	HMX-2479	Harris Moran	2	2	0	0
29	SRQP-3146	SunSeeds	2	2	0	0
30	HMX-1477	Harris Moran	3	2	0	1
31	SRQP-2860	SunSeeds	3	3	0	0
LSD (5%)			2	1	1	1
Mean			3	1	0	0
CV (%)			123	143	455	301

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	LexingtonPrth	02GH1607x1610	0	0	0	0
2	Johnston	NCState Univ.	0	0	0	0
3	G5xNC-54	02GH938x852	0	0	0	0
4	Raleigh	NCState Univ.	0	0	0	0
5	Lexingtn66x69	02GH1607x1610	0	0	0	0
6	Moriah(71x73)	02GH1584x1585	1	0	0	1
7	Longhrst68x69	02GH1609x1610	1	0	0	1
8	Calypso	NCState Univ.	1	0	0	1
9	H-19	Seminis	1	0	0	0
10	G4xNC-53	02GH1621x1624	1	0	0	1
11	M 21	NCState Univ.	1	1	0	0
12	Wis.SMR 18	Univ. Wis.	1	0	0	1
13	Linda(67x69)	02GH1608x161	1	0	0	1
14	HMX-1477	Harris Moran	1	1	0	0
15	G5xNC-55	02GH1627x1630	1	0	1	0
16	Davie(54x55)	02GH1616x1617	1	0	0	1
17	Napoleon	SunSeeds	2	0	0	1
18	G4xNC-56	02GH1622x1625	2	0	1	1
19	Merritt(70x72)	02GH1582x1583	2	0	0	2
20	G5xNC-52	02GH1626x1629	2	0	1	1
21	HMX-2478	Harris Moran	2	2	0	0
22	Duplin(56x57)	02GH1618x1619	3	1	0	1
23	SVR4506143	Seminis	3	2	0	1
24	G4xNC-57	02GH932x941	3	1	1	1
25	G4xNC-52	02GH1620x1623	3	1	0	2
26	G5xNC-57	02GH1628x1631	3	1	2	1
27	HMX-2479	Harris Moran	3	1	0	2
28	SRQP-2752	SunSeeds	4	1	0	2
29	SRQP-3146	SunSeeds	4	0	0	4
30	SRQP-2982	SunSeeds	6	2	2	2
31	SRQP-2860	SunSeeds	7	1	2	4
LSD (5%)			4	2	1	3
Mean			2	1	0	1
CV (%)			133	217	270	152

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	LexingtonPrth	02GH1607x1610	17.8	5.4	0	0	0	0
2	Linda(67x69)	02GH1608x161	16.9	4.9	2	1	0	1
3	H-19	Seminis	16.7	5.3	2	1	0	1
4	Longhrst68x69	02GH1609x1610	16.5	4.8	1	1	0	1
5	Lexingtn66x69	02GH1607x1610	16.2	5.3	1	0	0	0
6	Davie(54x55)	02GH1616x1617	15.5	6.0	2	0	0	1
7	G5xNC-57	02GH1628x1631	15.4	5.4	4	0	0	3
8	G4xNC-57	02GH932x941	15.4	5.2	3	0	0	3
9	G5xNC-55	02GH1627x1630	14.9	5.2	1	0	0	1
10	G5xNC-52	02GH1626x1629	14.9	4.4	3	1	1	2
11	SRQP-2982	SunSeeds	14.8	4.9	7	1	1	6
12	Calypso	NCState Univ.	14.6	4.8	1	1	0	1
13	Johnston	NCState Univ.	14.6	5.4	0	0	0	0
14	G4xNC-56	02GH1622x1625	14.4	5.3	2	0	0	2
15	HMX-1477	Harris Moran	14.2	5.0	4	3	2	1
16	G4xNC-53	02GH1621x1624	14.1	5.1	1	0	0	1
17	M 21	NCState Univ.	14.0	5.0	1	0	0	1
18	G4xNC-52	02GH1620x1623	13.9	5.3	3	0	0	3
19	Wis.SMR 18	Univ. Wis.	13.8	4.6	1	0	0	1
20	SRQP-2752	SunSeeds	13.8	5.3	5	1	0	4
21	Raleigh	NCState Univ.	13.7	5.5	1	1	1	0
22	Napoleon	SunSeeds	13.6	5.1	3	1	1	2
23	Duplin(56x57)	02GH1618x1619	13.4	5.8	3	0	0	3
24	HMX-2479	Harris Moran	13.4	4.9	5	2	2	3
25	SRQP-2860	SunSeeds	13.3	5.3	10	3	3	7
26	SVR4506143	Seminis	13.2	5.3	4	1	1	3
27	Merritt(70x72)	02GH1582x1583	13.1	4.5	2	0	0	2
28	Moriah(71x73)	02GH1584x1585	12.8	4.8	1	0	0	1
29	HMX-2478	Harris Moran	12.6	5.3	4	2	1	2
30	G5xNC-54	02GH938x852	12.3	6.0	1	1	1	0
31	SRQP-3146	SunSeeds	11.6	4.9	6	2	2	4
LSD (5%)			2.9	0.6	5	2	1	4
Mean			14.4	5.2	3	3	1	2
CV (%)			12	24	110	123	143	133

² Firmness determined by punch-testing (Magness-Taylor) 10 grade 2B fruits.

Correlation of Texture with: Firmness = -0.10ns, Balloon = -0.31**

Correlation of Texture with: Honeycomb = -0.12ns, Soft centers = -0.44**

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

Rank	Judge	Average quality	Shape	External color	Texture	Seed cell	Uniformity
1	Apol	6.3	6.3	6.3	6.3	6.3	6.3
2	Quill	5.7	5.0	6.1	5.5	5.6	6.5
3	Denlinger	5.7	5.6	6.1	5.2	5.4	6.0
4	Cates,C	5.5	5.5	5.7	5.4	4.9	5.7
5	Flores	5.4	5.0	5.2	5.5	5.8	5.6
6	Smith	5.3	4.6	4.9	5.5	5.7	5.6
7	Newsome	5.2	5.0	5.7	5.4	5.0	4.8
8	Quinn	4.9	4.1	5.6	4.2	3.5	7.1
9	Jackson	4.8	4.0	5.2	5.0	5.2	4.8
10	Cain	4.7	4.5	5.2	4.3	4.8	4.7
11	Cates,J	4.7	4.0	4.9	4.7	5.0	4.8
12	Ware	4.1	3.2	4.3	4.9	4.5	3.3

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

Pickling Cucumbers

Preliminary (Stage 1) Pickling Cucumber Trial 2003

The stage 1 pickle trial was not run this year.

Observational (Stage 2) Pickling Cucumber Trial 2003

The stage 2 pickle trial was not run this year.

Spring (Stage 3) Pickling Cucumber Trial 2003

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 24 April, and harvested 6 times (Mondays and Thursdays) between 16 June and 3 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:

01	SRQP-3146	SunSeeds
02	Raleigh	NCState Univ
03	Johnston	NCState Univ
04	SRQP-2982	SunSeeds
05	HMX-1477	Harris Moran
06	HMX-2478	Harris Moran
07	SRQP-2860	SunSeeds
08	G5xNC-57	NCState Univ
09	NC-Lexington (NC-66x69)	NCState Univ
10	NC-Davie (NC-54x55)	NCState Univ
11	NC-Moriah (NC-71x73)	NCState Univ

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-2982	SunSeeds	1868	346	22	3	17	49	8	26
2	G4xNC-53	02GH1621x1624	1811	329	18	4	9	61	8	25
3	SRQP-3146	SunSeeds	1734	291	18	5	17	54	6	26
4	SRQP-2860	SunSeeds	1679	298	26	6	16	49	4	26
5	H-19	Seminis	1629	206	11	11	41	32	6	26
6	Johnston	NCState Univ.	1609	258	18	6	17	55	5	21
7	G4xNC-52	02GH1620x1623	1585	269	22	6	15	53	4	25
8	HMX-2478	Harris Moran	1578	272	18	3	14	60	5	26
9	G5xNC-57	02GH1628x1631	1557	257	22	6	18	50	4	22
10	G5xNC-54	02GH938x852	1556	256	19	8	18	47	9	15
11	Longhrst68x69	02GH1609x1610	1553	195	13	11	37	38	1	26
12	HMX-1477	Harris Moran	1551	254	13	4	14	63	6	26
13	Raleigh	NCState Univ.	1532	263	15	5	11	61	8	15
14	G4xNC-56	02GH1622x1625	1507	297	23	3	13	52	9	26
15	SRQP-2752	SunSeeds	1468	242	19	6	17	55	4	26
16	Lexingtn66x69	02GH1607x1610	1439	224	11	7	27	37	17	19
17	SVR4506143	Seminis	1438	274	26	2	11	58	2	26
18	G5xNC-55	02GH1627x1630	1432	250	21	5	19	48	8	23
19	HMX-2479	Harris Moran	1421	255	14	3	12	60	12	26
20	Linda(67x69)	02GH1608x161	1405	163	12	17	37	30	3	21
21	Calypso	NCState Univ.	1404	253	19	5	11	54	11	24
22	G4xNC-57	02GH932x941	1373	263	21	3	12	56	8	24
23	Napoleon	SunSeeds	1334	223	13	3	17	58	8	20
24	M 21	NCState Univ.	1290	210	21	6	17	54	2	26
25	G5xNC-52	02GH1626x1629	1283	215	18	7	15	51	9	13
26	Duplin(56x57)	02GH1618x1619	1267	221	20	4	19	51	6	25
27	Merritt(70x72)	02GH1582x1583	1241	244	33	5	12	47	2	26
28	Davie(54x55)	02GH1616x1617	1199	220	17	4	17	50	13	21
29	Moriah(71x73)	02GH1584x1585	1134	202	30	6	19	41	4	26
30	Wis.SMR 18	Univ. Wis.	988	204	32	4	11	45	7	25
31	LexingtonPrth	02GH1607x1610	710	98	8	10	30	41	11	18
	LSD (5%)		418	63	8	4	6	10	7	4
	Mean		1438	244	19	6	18	50	7	23
	CV (%)		18	16	25	44	22	12	60	11

Correlation (Fruit value with fruit weight) = 0.80**

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 (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	G4xNC-53	02GH1621x1624	976	53	1125	61	1493	82	1683	93	1769	97
2	HMX-1477	Harris Moran	839	54	923	59	1300	84	1428	92	1479	95
3	HMX-2478	Harris Moran	832	53	895	57	1339	85	1430	91	1509	96
4	SRQP-3146	SunSeeds	747	43	877	50	1365	78	1508	86	1639	94
5	Raleigh	NCState Univ.	738	48	874	57	1184	77	1248	82	1422	93
6	SVR4506143	Seminis	798	56	852	59	1222	85	1351	94	1405	98
7	G4xNC-56	02GH1622x1625	740	50	827	56	1219	81	1376	92	1456	97
8	Johnston	NCState Univ.	694	43	811	51	1238	77	1348	84	1521	95
9	G4xNC-52	02GH1620x1623	714	46	801	52	1214	79	1323	85	1480	94
10	SRQP-2860	SunSeeds	647	39	780	46	1230	73	1403	84	1588	95
11	SRQP-2752	SunSeeds	663	45	769	52	1081	74	1209	82	1372	93
12	HMX-2479	Harris Moran	672	47	763	54	1081	76	1233	87	1338	94
13	G5xNC-55	02GH1627x1630	638	45	736	52	1150	81	1267	88	1341	94
14	SRQP-2982	SunSeeds	659	36	719	39	1288	69	1454	79	1768	95
15	G4xNC-57	02GH932x941	619	45	685	50	1073	78	1219	89	1308	96
16	G5xNC-57	02GH1628x1631	581	38	676	44	1144	74	1361	88	1462	94
17	Napoleon	SunSeeds	528	39	629	47	989	74	1114	83	1259	94
18	Calypso	NCState Univ.	540	39	626	45	1040	74	1187	85	1299	92
19	M 21	NCState Univ.	547	42	626	48	920	71	1053	82	1175	91
20	G5xNC-54	02GH938x852	393	25	612	39	1017	66	1197	77	1467	94
21	Longhrst68x69	02GH1609x1610	384	25	604	39	1082	70	1305	84	1460	94
22	G5xNC-52	02GH1626x1629	494	38	595	46	934	72	1075	84	1198	93
23	Merritt(70x72)	02GH1582x1583	512	41	590	48	972	79	1063	86	1175	95
24	Duplin(56x57)	02GH1618x1619	440	35	563	45	912	72	1068	85	1199	95
25	Moriah(71x73)	02GH1584x1585	410	36	510	45	861	75	993	87	1076	94
26	Davie(54x55)	02GH1616x1617	388	32	504	42	817	68	998	84	1143	95
27	H-19	Seminis	315	19	493	30	898	56	1111	69	1459	90
28	Linda(67x69)	02GH1608x161	298	21	487	34	831	59	1092	77	1328	95
29	Lexingtn66x69	02GH1607x1610	342	24	446	32	768	54	1088	76	1333	92
30	Wis.SMR 18	Univ. Wis.	312	30	389	38	690	69	793	79	886	89
31	LexingtonPrth	02GH1607x1610	108	14	150	20	207	29	308	43	564	80
	LSD (5%)		182	9	203	10	305	9	340	9	401	5
	Mean		567	39	675	46	1050	72	1203	83	1351	94
	CV (%)		20	13	18	13	18	7	17	6	18	3

Correlation (Fruit value with value in harvests 1 and 2) = 0.74**

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	Raleigh	NCState Univ.	7.4	8	7	6	8
2	Lexingtn66x69	02GH1607x1610	7.3	8	7	7	8
3	LexingtonPrth	02GH1607x1610	7.1	8	4	8	5
4	Davie(54x55)	02GH1616x1617	7.1	8	6	5	8
5	Napoleon	SunSeeds	7.1	8	9	6	7
6	H-19	Seminis	7.1	7	6	7	7
7	G5xNC-54	02GH938x852	7.0	8	6	5	8
8	Linda(67x69)	02GH1608x161	7.0	7	8	7	7
9	M 21	NCState Univ.	7.0	7	7	7	7
10	Johnston	NCState Univ.	6.9	7	7	7	7
11	Longhrst68x69	02GH1609x1610	6.8	7	7	8	6
12	SRQP-3146	SunSeeds	6.7	7	7	7	6
13	Calypso	NCState Univ.	6.7	7	5	6	7
14	Moriah(71x73)	02GH1584x1585	6.3	6	8	7	7
15	Duplin(56x57)	02GH1618x1619	6.2	7	7	5	7
16	Merritt(70x72)	02GH1582x1583	6.2	6	7	5	7
17	SRQP-2860	SunSeeds	6.2	7	7	6	6
18	G5xNC-55	02GH1627x1630	6.2	6	8	6	6
19	SRQP-2982	SunSeeds	6.0	7	8	5	6
20	SRQP-2752	SunSeeds	6.0	7	6	5	6
21	G5xNC-57	02GH1628x1631	6.0	7	8	5	6
22	HMX-2479	Harris Moran	5.8	6	7	5	6
23	Wis.SMR 18	Univ. Wis.	5.7	7	4	5	5
24	HMX-2478	Harris Moran	5.7	7	7	4	6
25	HMX-1477	Harris Moran	5.7	6	7	5	6
26	G5xNC-52	02GH1626x1629	5.7	6	7	5	6
27	SVR4506143	Seminis	5.6	6	6	6	5
28	G4xNC-53	02GH1621x1624	5.4	6	8	4	6
29	G4xNC-56	02GH1622x1625	5.4	5	7	5	6
30	G4xNC-57	02GH932x941	4.8	6	7	4	5
31	G4xNC-52	02GH1620x1623	4.6	5	6	4	5
	LSD (5%)		1.0	2	1	2	1
	Mean		6.3	7	7	6	7
	CV (%)		10.1	14	13	18	13

^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) = -0.12^{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	LexingtonPrth	02GH1607x1610	19.0	3.2	K	P	W	W	W	A
2	Longhrst68x69	02GH1609x1610	19.0	3.6	K	V	X	GX	X	T
3	Lexingtn66x69	02GH1607x1610	16.7	3.3	K	G	K	V	T	G
4	H-19	Seminis	16.0	3.3	K	V	V	X	K	A
5	HMX-1477	Harris Moran	16.0	3.1	K	T	T	T	G	K
6	Johnston	NCState Univ.	15.3	3.9	G	O	G	T	R	T
7	Calypso	NCState Univ.	15.3	3.1	K	K	W	T	H	K
8	Duplin(56x57)	02GH1618x1619	14.7	3.2	A	K	K	G	T	A
9	SRQP-2860	SunSeeds	14.7	3.2	H	K	D	K	H	H
10	G5xNC-57	02GH1628x1631	14.7	3.3	K	K	G	T	G	T
11	Wis.SMR 18	Univ. Wis.	14.7	3.0	Y	T	Y	D	K	W
12	Davie(54x55)	02GH1616x1617	14.3	3.0	K	K	K	K	K	T
13	Linda(67x69)	02GH1608x161	14.3	3.6	K	K	V	AX	T	T
14	HMX-2478	Harris Moran	14.3	3.1	K	H	K	T	K	W
15	SVR4506143	Seminis	14.3	3.1	T	H	N	D	T	H
16	G4xNC-53	02GH1621x1624	14.3	2.9	A	K	N	H	T	D
17	G4xNC-57	02GH932x941	14.3	3.1	C	K	H	H	H	D
18	Raleigh	NCState Univ.	13.7	3.2	K	K	M	T	K	K
19	Merritt(70x72)	02GH1582x1583	13.7	3.3	U	K	D	H	T	T
20	SRQP-2752	SunSeeds	13.7	3.1	K	D	M	D	T	K
21	HMX-2479	Harris Moran	13.7	3.0	G	K	K	T	T	F
22	G4xNC-56	02GH1622x1625	13.7	2.8	K	H	T	D	T	O
23	Napoleon	SunSeeds	13.3	3.0	K	K	K	H	K	K
24	G5xNC-55	02GH1627x1630	13.0	3.3	T	K	T	K	T	G
25	SRQP-2982	SunSeeds	13.0	3.3	K	H	K	D	K	G
26	G4xNC-52	02GH1620x1623	13.0	2.7	W	H	H	H	T	N
27	M 21	NCState Univ.	12.7	3.7	G	K	G	K	G	M
28	Moriah(71x73)	02GH1584x1585	12.7	3.4	U	K	G	T	T	T
29	G5xNC-52	02GH1626x1629	12.7	3.3	G	K	G	T	G	T
30	G5xNC-54	02GH938x852	12.0	2.5	K	K	D	K	K	K
31	SRQP-3146	SunSeeds	12.0	3.0	K	T	K	T	G	F
LSD (5%)			3.3	0.5						
Mean			14.3	3.2						
CV (%)			14.0	9.0						

^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 - fruit keeping ability data (cultigens are ranked by % weight loss).

Rank	Cultivar or line	Seed source	Weight loss (%) ^z	Rating (0 - 9) ^y Shriv- eling	Rots & disease	Firm- ness (lb.) ^x
1	Longhrst68x69	02GH1609x1610	12	2	2	15
2	M 21	NCState Univ.	13	5	4	11
3	G5xNC-57	02GH1628x1631	13	2	1	15
4	LexingtonPrth	02GH1607x1610	13	1	1	18
5	Johnston	NCState Univ.	13	3	1	13
6	Wis.SMR 18	Univ. Wis.	14	7	1	13
7	SRQP-2860	SunSeeds	15	4	1	12
8	Napoleon	SunSeeds	15	1	1	11
9	HMX-2479	Harris Moran	15	4	3	14
10	Lexingtn66x69	02GH1607x1610	15	2	1	14
11	G5xNC-55	02GH1627x1630	15	2	3	15
12	G5xNC-54	02GH938x852	15	4	3	13
13	SRQP-2982	SunSeeds	16	3	2	11
14	Raleigh	NCState Univ.	16	2	1	13
15	HMX-2478	Harris Moran	16	5	5	8
16	Linda(67x69)	02GH1608x161	16	3	2	17
17	SRQP-2752	SunSeeds	16	4	2	11
18	Merritt(70x72)	02GH1582x1583	16	5	2	12
19	G4xNC-53	02GH1621x1624	16	4	3	11
20	G4xNC-56	02GH1622x1625	17	3	1	13
21	G4xNC-52	02GH1620x1623	17	3	2	11
22	H-19	Seminis	18	5	1	16
23	Duplin(56x57)	02GH1618x1619	18	2	1	13
24	G5xNC-52	02GH1626x1629	19	6	6	14
25	Moriah(71x73)	02GH1584x1585	19	6	3	13
26	G4xNC-57	02GH932x941	19	5	3	13
27	SVR4506143	Seminis	19	4	1	13
28	HMX-1477	Harris Moran	19	5	4	13
29	Davie(54x55)	02GH1616x1617	20	2	2	14
30	SRQP-3146	SunSeeds	20	3	2	10
31	Calypso	NCState Univ.	21	5	2	14
LSD (5%)			4	3	3	4
Mean			16	4	2	13
CV (%)			14	42	74	21

^z After storage at room temperature for 8 days in open kraft paper bags.

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

^x Firmness after storage using Magness-Taylor fruit punch tester.

Correlation (Weight loss with shriveling) = 0.23*

Correlation (Weight loss with firmness) = -0.18^{ns}

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

Rank	Cultivar or line	Seed source	Total bloater damage	Balloon	Lens	Honey- comb
1	Longhrst68x69	02GH1609x1610	0	0	0	0
2	M 21	NCState Univ.	0	0	0	0
3	Raleigh	NCState Univ.	3	2	2	0
4	Calypso	NCState Univ.	3	2	2	0
5	Napoleon	SunSeeds	4	2	1	1
6	Duplin(56x57)	02GH1618x1619	5	5	0	0
7	SRQP-3146	SunSeeds	5	5	0	0
8	Wis.SMR 18	Univ. Wis.	6	2	0	3
9	Lexingtn66x69	02GH1607x1610	6	3	0	3
10	SRQP-2860	SunSeeds	7	4	1	2
11	G4xNC-56	02GH1622x1625	7	5	0	2
12	H-19	Seminis	7	6	0	2
13	Johnston	NCState Univ.	8	5	1	2
14	G4xNC-57	02GH932x941	8	7	1	0
15	G4xNC-53	02GH1621x1624	8	7	0	2
16	LexingtonPrth	02GH1607x1610	9	6	1	2
17	SRQP-2982	SunSeeds	9	2	3	5
18	G5xNC-55	02GH1627x1630	9	8	1	0
19	Linda(67x69)	02GH1608x161	9	9	0	0
20	G4xNC-52	02GH1620x1623	10	9	1	0
21	G5xNC-57	02GH1628x1631	11	8	2	0
22	SVR4506143	Seminis	12	7	0	5
23	Merritt(70x72)	02GH1582x1583	12	8	3	0
24	HMX-1477	Harris Moran	12	2	3	7
25	SRQP-2752	SunSeeds	13	10	3	0
26	Davie(54x55)	02GH1616x1617	14	12	3	0
27	HMX-2478	Harris Moran	17	12	3	2
28	Moriah(71x73)	02GH1584x1585	19	15	2	2
29	G5xNC-54	02GH938x852	19	13	6	0
30	HMX-2479	Harris Moran	19	17	0	3
31	G5xNC-52	02GH1626x1629	21	15	4	2
LSD (5%)			11	10	4	5
Mean			9	7	1	1
CV (%)			69	90	187	226

^z Data are means of 2 harvests, 5 fruits/cultigen.
Fruits tested in 5 gal. pails purged with 100% CO₂.

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

Rank	Cultivar or line	Seed source	Bloaters + defects	Total bloater damage	Total defects	Blossom -end defects	Placen -tal hollow	Soft center
1	M 21	NCState Univ.	0	0	0	0	0	0
2	Longhrst68x69	02GH1609x1610	1	0	1	0	0	1
3	Lexingt66x69	02GH1607x1610	6	6	0	0	0	0
4	Calypso	NCState Univ.	8	3	5	2	0	3
5	Duplin(56x57)	02GH1618x1619	8	5	3	3	0	0
6	Johnston	NCState Univ.	9	8	2	0	2	0
7	Napoleon	SunSeeds	10	4	5	0	2	3
8	H-19	Seminis	10	7	3	2	0	1
9	LexingtonPrth	02GH1607x1610	11	9	2	2	0	0
10	Linda(67x69)	02GH1608x161	11	9	2	2	0	0
11	Raleigh	NCState Univ.	12	3	8	5	2	2
12	G4xNC-53	02GH1621x1624	12	8	3	3	0	0
13	SRQP-2860	SunSeeds	12	7	5	3	0	2
14	G4xNC-56	02GH1622x1625	12	7	5	4	0	1
15	SRQP-3146	SunSeeds	12	5	7	5	2	0
16	G5xNC-55	02GH1627x1630	13	9	3	2	0	2
17	G4xNC-57	02GH932x941	13	8	6	3	0	2
18	Wis.SMR 18	Univ. Wis.	14	6	8	5	0	3
19	G5xNC-57	02GH1628x1631	14	11	3	3	0	0
20	SRQP-2982	SunSeeds	14	9	5	3	0	2
21	Merritt(70x72)	02GH1582x1583	15	12	3	0	0	3
22	HMX-1477	Harris Moran	15	12	3	2	2	0
23	Davie(54x55)	02GH1616x1617	16	14	2	2	0	0
24	G4xNC-52	02GH1620x1623	16	10	6	3	0	3
25	SRQP-2752	SunSeeds	18	13	5	5	0	0
26	SVR4506143	Seminis	20	12	8	3	3	2
27	G5xNC-54	02GH938x852	21	19	2	2	0	0
28	HMX-2479	Harris Moran	21	19	2	2	0	0
29	HMX-2478	Harris Moran	22	17	5	3	2	0
30	Moriah(71x73)	02GH1584x1585	22	19	3	2	0	2
31	G5xNC-52	02GH1626x1629	25	21	4	3	0	1
LSD (5%)			13	11	6	5	2	3
Mean			13	9	4	2	0	1
CV (%)			61	69	98	118	320	205

^z Data are means of 2 harvests, 5 fruits/cultigen.
Fruits tested in 5 gal. pails purged with 100% CO₂.

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 ^z	Vine size ^y	Vine color ^x
1	SVR4506143	Seminis	8	8	7
2	Calypso	NCState Univ.	8	7	7
3	G4xNC-53	02GH1621x1624	8	7	7
4	G5xNC-52	02GH1626x1629	8	7	7
5	SRQP-2982	SunSeeds	8	7	8
6	G4xNC-52	02GH1620x1623	8	7	8
7	HMX-2478	Harris Moran	7	8	8
8	G5xNC-55	02GH1627x1630	7	7	8
9	G5xNC-57	02GH1628x1631	7	7	8
10	Raleigh	NCState Univ.	7	7	7
11	SRQP-2752	SunSeeds	7	7	8
12	Johnston	NCState Univ.	7	7	8
13	HMX-1477	Harris Moran	7	8	8
14	G4xNC-56	02GH1622x1625	7	8	7
15	G4xNC-57	02GH932x941	7	7	7
16	SRQP-3146	SunSeeds	7	7	8
17	G5xNC-54	02GH938x852	7	7	7
18	SRQP-2860	SunSeeds	7	6	8
19	Moriah(71x73)	02GH1584x1585	6	7	7
20	HMX-2479	Harris Moran	6	8	8
21	LexingtonPrth	02GH1607x1610	6	7	7
22	Lexingtn66x69	02GH1607x1610	5	6	7
23	Duplin(56x57)	02GH1618x1619	5	8	8
24	Davie(54x55)	02GH1616x1617	5	7	7
25	M 21	NCState Univ.	5	6	7
26	Longhrst68x69	02GH1609x1610	5	6	6
27	Napoleon	SunSeeds	5	6	8
28	Merritt(70x72)	02GH1582x1583	4	7	7
29	H-19	Seminis	4	7	6
30	Linda(67x69)	02GH1608x161	3	6	7
31	Wis.SMR 18	Univ. Wis.	3	7	6
	LSD (5%)		2	1	1
	Mean		6	7	7
	CV (%)		21	12	12

^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 with gynoecious rating) = 0.24*

Correlation (Yield with vine size) = 0.00^{ns}

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

Rank	Cultivar or line	Seed source	Anthracnose rating
1	Johnston	NCState Univ.	1.0
2	Moriah(71x73)	02GH1584x1585	1.0
3	Duplin(56x57)	02GH1618x1619	1.0
4	Davie(54x55)	02GH1616x1617	1.0
5	Longhrst68x69	02GH1609x1610	1.0
6	G5xNC-57	02GH1628x1631	1.3
7	G4xNC-56	02GH1622x1625	1.3
8	HMX-2479	Harris Moran	1.3
9	LexingtonPrth	02GH1607x1610	1.3
10	Lexingtn66x69	02GH1607x1610	1.3
11	H-19	Seminis	1.3
12	Linda(67x69)	02GH1608x161	1.3
13	Calypso	NCState Univ.	1.7
14	SRQP-2982	SunSeeds	1.7
15	G5xNC-55	02GH1627x1630	1.7
16	HMX-1477	Harris Moran	1.7
17	SRQP-3146	SunSeeds	1.7
18	G5xNC-54	02GH938x852	1.7
19	M 21	NCState Univ.	1.7
20	G4xNC-53	02GH1621x1624	2.0
21	G5xNC-52	02GH1626x1629	2.0
22	G4xNC-52	02GH1620x1623	2.0
23	Raleigh	NCState Univ.	2.0
24	G4xNC-57	02GH932x941	2.0
25	HMX-2478	Harris Moran	2.3
26	Napoleon	SunSeeds	2.3
27	SVR4506143	Seminis	3.0
28	SRQP-2752	SunSeeds	3.0
29	SRQP-2860	SunSeeds	3.0
30	Merritt(70x72)	02GH1582x1583	3.0
31	Wis.SMR 18	Univ. Wis.	5.7
LSD (5%)			1.5
Mean			1.9
CV (%)			47.6

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

Correlation (Yield vs. disease rating) = -0.03^{ns}

Table 15. 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	G4xNC-53	02GH1621x1624	9.8	8.1	16.1	13.6
2	SRQP-3146	SunSeeds	9.2	7.8	11.1	13.0
3	Raleigh	NCState Univ.	9.0	7.7	9.6	10.9
4	Johnston	NCState Univ.	9.0	7.6	9.9	10.3
5	SRQP-2982	SunSeeds	8.9	7.7	15.0	15.3
6	HMX-1477	Harris Moran	8.8	7.4	15.4	13.1
7	HMX-2478	Harris Moran	8.7	7.3	16.4	15.2
8	SRQP-2860	SunSeeds	8.6	7.3	15.2	15.1
9	G4xNC-56	02GH1622x1625	8.4	7.3	16.7	14.4
10	G5xNC-57	02GH1628x1631	8.3	7.2	16.2	15.7
11	Longhrst68x69	02GH1609x1610	8.3	7.0	13.4	14.3
12	G5xNC-55	02GH1627x1630	8.2	7.1	15.7	15.7
13	HMX-2479	Harris Moran	8.2	7.1	16.7	15.0
14	SVR4506143	Seminis	8.1	7.0	19.4	17.0
15	G5xNC-54	02GH938x852	8.1	7.1	13.9	16.5
16	SRQP-2752	SunSeeds	8.1	6.9	17.4	17.5
17	G4xNC-52	02GH1620x1623	8.0	6.9	20.9	19.1
18	H-19	Seminis	8.0	6.9	13.3	15.7
19	Napoleon	SunSeeds	7.9	6.9	14.1	16.1
20	Calypso	NCState Univ.	7.8	6.9	15.4	15.6
21	M 21	NCState Univ.	7.7	6.8	15.3	16.5
22	Linda(67x69)	02GH1608x161	7.6	6.6	14.6	17.0
23	Lexingtn66x69	02GH1607x1610	7.6	6.8	13.3	14.8
24	G4xNC-57	02GH932x941	7.5	6.6	21.3	18.7
25	Duplin(56x57)	02GH1618x1619	7.4	6.7	16.9	16.0
26	Davie(54x55)	02GH1616x1617	7.4	6.7	14.5	15.3
27	G5xNC-52	02GH1626x1629	7.2	6.4	19.4	19.8
28	Merritt(70x72)	02GH1582x1583	7.2	6.5	19.4	18.9
29	Moriah(71x73)	02GH1584x1585	7.1	6.4	17.5	18.0
30	Wis.SMR 18	Univ. Wis.	5.5	5.0	24.1	23.6
31	LexingtonPrth	02GH1607x1610	5.4	4.8	18.1	18.5
LSD (5%)			1.3	0.9	5.6	4.6
Mean			8.0	6.9	16.0	16.0
CV (%)			9.7	7.7	21.5	17.5

^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 (Yield with SWI1) = 0.90**

Correlation (Yield with ARI1) = -0.48**

Summer (Stage 4) Pickling Cucumber Trial 2003

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 17 July, and harvested 5 times (Mondays and Thursdays) between 28 August and 15 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:

01	HMX-1477	Harris Moran
02	SVR4506143	Seminis
03	SRQP-3146	SunSeeds
04	SRQP-2982	SunSeeds
05	SRQP-2860	SunSeeds
06	Johnston	NCState Univ
07	Napoleon	SunSeeds
08	NC-Lexington (NC-66x69)	NCState Univ
09	NC-Merritt (NC-70x72)	NCState Univ
10	NC-Duplin (NC-56x57)	NCState Univ

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	HMX-1477	Harris Moran	1784	308	12	4	21	49	14	26
2	SVR4506143	Seminis	1571	294	23	2	17	50	8	26
3	SRQP-2860	SunSeeds	1491	252	24	5	22	43	6	26
4	Johnston	NCState Univ.	1473	228	17	7	25	43	7	23
5	SRQP-2982	SunSeeds	1446	251	24	5	22	44	4	26
6	SRQP-3146	SunSeeds	1432	231	21	5	23	48	3	26
7	G4xNC-52	02GH1620x1623	1400	245	20	4	10	63	3	25
8	Napoleon	SunSeeds	1358	200	12	8	24	47	9	24
9	G4xNC-53	02GH1621x1624	1331	241	23	2	8	66	1	26
10	G4xNC-56	02GH1622x1625	1316	236	25	4	14	54	4	25
11	HMX-2479	Harris Moran	1289	231	16	5	18	46	15	26
12	Raleigh	NCState Univ.	1267	223	20	4	17	51	8	23
13	SRQP-2752	SunSeeds	1230	221	29	4	11	51	4	26
14	Lexingtn66x69	02GH1607x1610	1214	162	15	13	30	36	6	23
15	Calypso	NCState Univ.	1197	196	22	8	26	37	6	26
16	M 21	NCState Univ.	1191	171	18	12	34	27	9	26
17	LexingtonPrth	02GH1607x1610	1189	165	14	9	31	41	6	21
18	Duplin(56x57)	02GH1618x1619	1173	184	20	9	23	41	7	26
19	Merritt(70x72)	02GH1582x1583	1084	196	23	5	20	40	11	21
20	HMX-2478	Harris Moran	1079	166	22	8	30	36	4	26
21	Longhrst68x69	02GH1609x1610	1041	118	20	21	40	18	0	26
22	Linda(67x69)	02GH1608x161	1027	119	19	23	33	23	2	25
23	H-19	Seminis	1025	121	6	12	43	35	4	26
24	G4xNC-57	02GH932x941	1019	188	22	2	12	61	3	21
25	Davie(54x55)	02GH1616x1617	993	198	32	5	14	36	12	26
26	Moriah(71x73)	02GH1584x1585	913	136	24	9	28	38	1	26
27	Wis.SMR 18	Univ. Wis.	557	147	30	4	12	28	27	26
LSD (5%)			651	109	15	4	8	14	9	3
Mean			1226	201	20	7	23	43	7	25
CV (%)			32	33	44	33	21	19	84	8

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

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 ^z (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	HMX-1477	Harris Moran	881	47	1354	75	1501	83	1644	92	1744	98
2	SVR4506143	Seminis	923	56	1351	84	1432	90	1516	96	1541	98
3	G4xNC-53	02GH1621x1624	914	70	1145	86	1226	92	1266	95	1301	98
4	SRQP-3146	SunSeeds	767	48	1142	77	1240	85	1362	95	1405	98
5	G4xNC-52	02GH1620x1623	818	59	1117	80	1247	90	1331	95	1367	98
6	SRQP-2860	SunSeeds	703	45	1057	69	1201	78	1325	88	1433	95
7	SRQP-2982	SunSeeds	708	48	1046	71	1172	80	1311	90	1387	95
8	Johnston	NCState Univ.	567	40	1006	70	1184	82	1319	91	1399	96
9	G4xNC-56	02GH1622x1625	703	51	999	74	1102	83	1186	90	1265	96
10	SRQP-2752	SunSeeds	673	59	920	77	1040	87	1141	94	1168	96
11	Raleigh	NCState Univ.	532	42	898	71	1048	83	1134	90	1215	96
12	Napoleon	SunSeeds	438	28	873	61	991	69	1173	84	1311	96
13	HMX-2479	Harris Moran	481	33	850	64	959	73	1151	89	1244	96
14	G4xNC-57	02GH932x941	622	61	836	82	906	89	952	93	985	97
15	Merritt(70x72	02GH1582x1583	521	46	815	74	881	81	1002	92	1058	97
16	Calypso	NCState Univ.	474	38	809	67	952	78	1065	88	1151	95
17	Duplin(56x57)	02GH1618x1619	438	30	761	59	901	73	1012	83	1132	96
18	HMX-2478	Harris Moran	384	33	679	61	827	76	907	84	999	92
19	M 21	NCState Univ.	291	23	661	54	834	68	988	82	1095	91
20	Davie(54x55)	02GH1616x1617	372	34	632	62	777	76	898	90	960	97
21	Linda(67x69)	02GH1608x161	118	11	554	52	713	68	899	87	983	96
22	LexingtonPrth	02GH1607x1610	69	6	547	46	688	58	912	76	1106	93
23	Lexingtn66x69	02GH1607x1610	31	2	511	40	687	55	927	76	1065	87
24	Longhrst68x69	02GH1609x1610	13	1	491	47	665	64	860	83	982	94
25	Moriah(71x73)	02GH1584x1585	110	12	458	50	600	66	725	79	804	88
26	H-19	Seminis	8	1	392	37	612	60	773	75	892	86
27	Wis.SMR 18	Univ. Wis.	170	30	320	54	405	68	467	80	528	90
	LSD (5%)		405	16	503	13	560	12	602	8	630	6
	Mean		471	35	823	65	955	76	1083	87	1167	95
	CV (%)		52	27	37	12	36	10	34	6	33	4

Correlation (Fruit value with value in harvests 1 and 2) = 0.93**

Table 18. Stage 4 summer 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	Napoleon	SunSeeds	7.8	8	9	8	8
2	Lexingtn66x69	02GH1607x1610	7.3	8	7	7	7
3	HMX-2478	Harris Moran	7.3	7	7	7	8
4	HMX-1477	Harris Moran	7.2	8	8	7	7
5	Calypso	NCState Univ.	7.0	7	6	7	7
6	Merritt(70x72	02GH1582x1583	6.9	8	7	5	8
7	SRQP-2860	SunSeeds	6.9	7	9	6	8
8	Duplin(56x57)	02GH1618x1619	6.9	7	7	6	7
9	M 21	NCState Univ.	6.9	7	7	6	7
10	SVR4506143	Seminis	6.9	7	6	8	6
11	LexingtonPrth	02GH1607x1610	6.9	7	6	7	7
12	Linda(67x69)	02GH1608x161	6.9	7	8	7	7
13	Moriah(71x73)	02GH1584x1585	6.8	7	8	6	7
14	HMX-2479	Harris Moran	6.7	7	8	6	7
15	SRQP-2982	SunSeeds	6.6	8	8	5	6
16	H-19	Seminis	6.6	7	6	7	6
17	Davie(54x55)	02GH1616x1617	6.6	7	6	5	8
18	Raleigh	NCState Univ.	6.6	7	6	5	7
19	Longhrst68x69	02GH1609x1610	6.4	6	7	7	6
20	SRQP-3146	SunSeeds	6.4	7	8	6	6
21	Johnston	NCState Univ.	6.3	6	8	7	6
22	SRQP-2752	SunSeeds	6.1	7	7	5	6
23	G4xNC-56	02GH1622x1625	5.0	6	7	4	6
24	G4xNC-53	02GH1621x1624	4.9	5	6	4	5
25	G4xNC-57	02GH932x941	4.8	6	6	4	5
26	Wis.SMR 18	Univ. Wis.	4.4	6	4	4	4
27	G4xNC-52	02GH1620x1623	4.3	5	6	4	4
LSD (5%)			0.9	1	1	2	1
Mean			6.4	7	7	6	7
CV (%)			8.6	13	11	17	12

^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) = 0.19^{ns}

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

Rank	Cultivar or line	Seed source	Firm- ness	L/D ratio	Defects 1°			Defects 2°		
					2	4	6	2	4	6
1	Longhrst68x69	02GH1609x1610	17.7	3.3	G	A	T	T	T	X
2	H-19	Seminis	17.3	3.0	K	A	K	A	X	A
3	Calypso	NCState Univ.	17.0	3.0	W	K	K	K	D	T
4	Linda(67x69)	02GH1608x161	17.0	3.2	G	T	T	T	X	X
5	LexingtonPrth	02GH1607x1610	16.3	3.0	T	T	K	K	W	T
6	SVR4506143	Seminis	16.0	2.7	K	T	D	T	D	K
7	Davie(54x55)	02GH1616x1617	16.0	2.9	K	K	D	K	H	K
8	HMX-2478	Harris Moran	15.7	3.6	K	K	T	K	K	K
9	Raleigh	NCState Univ.	15.7	2.9	H	T	K	K	G	T
10	SRQP-2982	SunSeeds	15.3	2.7	H	K	K	K	H	T
11	HMX-1477	Harris Moran	15.0	3.1	K	K	K	K	T	T
12	Merritt(70x72	02GH1582x1583	15.0	3.2	K	T	T	K	K	K
13	HMX-2479	Harris Moran	15.0	2.9	G	K	M	K	M	H
14	G4xNC-56	02GH1622x1625	15.0	2.5	H	H	H	M	K	T
15	G4xNC-57	02GH932x941	15.0	2.6	H	H	H	K	T	T
16	Wis.SMR 18	Univ. Wis.	15.0	2.9	Y	Y	Y	W	W	W
17	Lexingt66x69	02GH1607x1610	14.7	3.1	T	T	T	L	A	K
18	Duplin(56x57)	02GH1618x1619	14.7	3.1	K	M	H	K	D	K
19	M 21	NCState Univ.	14.7	3.8	G	G	K	L	T	G
20	Johnston	NCState Univ.	14.7	3.5	G	G	G	K	T	K
21	G4xNC-53	02GH1621x1624	14.7	2.5	H	H	H	K	T	D
22	Napoleon	SunSeeds	14.3	2.9	K	G	K	K	K	G
23	SRQP-2860	SunSeeds	13.7	2.8	H	H	T	K	M	K
24	SRQP-3146	SunSeeds	13.7	2.9	H	H	K	K	M	T
25	SRQP-2752	SunSeeds	13.7	2.9	D	T	M	K	K	D
26	Moriah(71x73)	02GH1584x1585	13.0	3.7	G	G	G	K	T	K
27	G4xNC-52	02GH1620x1623	12.3	2.6	H	H	H	R	T	T
LSD (5%)			2.5	0.4						
Mean			15.1	3.0						
CV (%)			10.2	8.9						

^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 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 ^z	Vine size ^y	Vine color ^x
1	G4xNC-53	02GH1621x1624	9	9	8
2	G4xNC-52	02GH1620x1623	9	8	8
3	G4xNC-56	02GH1622x1625	9	7	8
4	SRQP-2982	SunSeeds	9	7	8
5	G4xNC-57	02GH932x941	9	7	8
6	SVR4506143	Seminis	8	9	8
7	Raleigh	NCState Univ.	8	8	8
8	SRQP-2752	SunSeeds	8	8	7
9	Calypso	NCState Univ.	8	7	6
10	Johnston	NCState Univ.	8	8	7
11	SRQP-2860	SunSeeds	8	6	6
12	SRQP-3146	SunSeeds	7	8	8
13	Longhrst68x69	02GH1609x1610	6	6	7
14	HMX-1477	Harris Moran	6	9	8
15	HMX-2478	Harris Moran	6	7	9
16	Lexingtn66x69	02GH1607x1610	6	6	6
17	Duplin(56x57)	02GH1618x1619	6	6	8
18	H-19	Seminis	6	6	7
19	Linda(67x69)	02GH1608x161	6	6	6
20	LexingtonPrth	02GH1607x1610	6	6	6
21	HMX-2479	Harris Moran	5	8	8
22	Merritt(70x72)	02GH1582x1583	5	8	6
23	Moriah(71x73)	02GH1584x1585	5	6	6
24	Wis.SMR 18	Univ. Wis.	5	9	4
25	Napoleon	SunSeeds	5	7	7
26	Davie(54x55)	02GH1616x1617	5	8	8
27	M 21	NCState Univ.	4	6	7
	LSD (5%)		2	2	2
	Mean		7	7	7
	CV (%)		14	15	14

^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 with gynoecious rating) = 0.38**

Correlation (Yield with vine size) = 0.47**

Table 21. Stage 4 summer pickle trial - disease data (cultigens are ranked by disease resistance).^z

Rank	Cultivar or line	Seed source	Anthrac- nose
1	G4xNC-52	02GH1620x1623	1.7
2	G4xNC-56	02GH1622x1625	1.7
3	HMX-2478	Harris Moran	1.7
4	Moriah(71x73)	02GH1584x1585	1.7
5	SRQP-2982	SunSeeds	2.0
6	Johnston	NCState Univ.	2.0
7	Duplin(56x57)	02GH1618x1619	2.0
8	Lexingtn66x69	02GH1607x1610	2.3
9	HMX-2479	Harris Moran	2.3
10	G4xNC-53	02GH1621x1624	2.7
11	G4xNC-57	02GH932x941	2.7
12	SVR4506143	Seminis	2.7
13	Raleigh	NCState Univ.	2.7
14	SRQP-2860	SunSeeds	2.7
15	SRQP-3146	SunSeeds	2.7
16	HMX-1477	Harris Moran	2.7
17	H-19	Seminis	2.7
18	Napoleon	SunSeeds	2.7
19	Calypso	NCState Univ.	3.0
20	LexingtonPrth	02GH1607x1610	3.0
21	Davie(54x55)	02GH1616x1617	3.0
22	M 21	NCState Univ.	3.0
23	Merritt(70x72)	02GH1582x1583	3.3
24	SRQP-2752	SunSeeds	3.7
25	Longhrst68x69	02GH1609x1610	3.7
26	Linda(67x69)	02GH1608x161	4.7
27	Wis.SMR 18	Univ. Wis.	5.7
LSD (5%)			1.5
Mean			2.8
CV (%)			32.8

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

Correlation (Yield vs. anthracnose rating) = 0.03^{ns}

Table 22. Stage 4 summer 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	HMX-1477	Harris Moran	10.9	8.8	7.9	8.7
2	SVR4506143	Seminis	10.4	8.4	9.9	9.0
3	SRQP-3146	SunSeeds	9.4	7.8	13.4	13.5
4	SRQP-2982	SunSeeds	9.4	7.8	11.1	11.0
5	SRQP-2860	SunSeeds	9.4	7.9	10.9	12.2
6	Johnston	NCState Univ.	9.1	7.6	12.6	12.1
7	Napoleon	SunSeeds	8.9	7.5	9.5	12.2
8	G4xNC-53	02GH1621x1624	8.8	7.4	16.6	14.2
9	G4xNC-52	02GH1620x1623	8.8	7.3	16.6	14.4
10	G4xNC-56	02GH1622x1625	8.5	7.2	15.8	13.3
11	HMX-2479	Harris Moran	8.4	7.2	12.6	12.7
12	Raleigh	NCState Univ.	8.4	7.2	12.4	12.2
13	SRQP-2752	SunSeeds	8.1	7.0	16.0	15.9
14	Calypso	NCState Univ.	8.0	6.9	12.9	13.1
15	Duplin(56x57)	02GH1618x1619	8.0	6.8	12.6	13.5
16	Merritt(70x72)	02GH1582x1583	7.8	6.9	14.1	14.3
17	HMX-2478	Harris Moran	7.7	6.8	10.7	11.5
18	M 21	NCState Univ.	7.5	6.5	14.0	15.6
19	Lexingtn66x69	02GH1607x1610	7.3	6.4	11.8	13.9
20	G4xNC-57	02GH932x941	7.3	6.4	19.2	16.0
21	LexingtonPrth	02GH1607x1610	7.1	6.2	13.8	14.8
22	Davie(54x55)	02GH1616x1617	7.0	6.3	15.3	15.0
23	Linda(67x69)	02GH1608x161	6.8	5.8	15.9	17.0
24	Moriah(71x73)	02GH1584x1585	6.7	6.1	13.9	15.4
25	Longhrst68x69	02GH1609x1610	6.6	5.7	17.4	17.4
26	H-19	Seminis	6.4	5.6	16.2	16.3
27	Wis.SMR 18	Univ. Wis.	4.3	4.2	24.9	23.1
	LSD (5%)		2.6	1.6	4.8	3.9
	Mean		8.0	6.9	14.0	14.0
	CV (%)		19.5	14.0	20.9	17.0

^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) = 0.97**

Correlation (Yield with ARI1) = -0.53**

Slicing Cucumbers

Preliminary (Stage 1) slicing Cucumber Trial 2003

The stage 1 slicer trial was not run this year.

Observational (Stage 2) slicing Cucumber Trial 2003

The stage 2 slicer trial was not run this year.

Spring (Stage 3) slicing Cucumber Trial 2003

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 24 April, and harvested 6 times (Mondays and Thursdays) between 19 June and 7 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:

01	SVR147-10463	Seminis
02	General Lee (4440)	Harris Moran
03	G83xNC-58	NCState Univ
04	SRQS-2926	SunSeeds
05	Speedway	Seminis
06	G83xNC-59	NCState Univ
07	WA-3003	Western Seed
08	NC-Sunshine (NC-62x63)	NCState Univ
09	NC-Stratford (NC-58x59)	NCState Univ

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	G83xNC-59	GH1652x1654	107	201	36	33	26
2	GeneralLee4440	HarrisMoran	92	208	34	24	26
3	G83xNC-58	GH126x127	83	197	29	33	26
4	Sunshine62x63	GH1646x1647	81	174	30	36	26
5	SVR147-10463	Seminis	81	203	31	23	26
6	WA-3003	WesternSeed	80	167	30	36	26
7	ACX-18	Abbott&Cobb	77	184	30	28	26
8	SVR147-10464	Seminis	76	170	30	34	25
9	SRQS-3153	SunSeeds	74	167	32	32	26
10	SRQS-2926	SunSeeds	74	157	33	31	26
11	Speedway	Seminis	70	193	24	33	26
12	SRQS-2732	SunSeeds	70	169	32	22	26
13	Poinsett 76	CornellUniv	69	160	30	30	26
14	Intimidator	Seminis	68	155	27	36	26
15	G57xNC-58	GH125x127	62	142	23	48	26
16	Marketmore 76	Check	62	125	35	29	25
17	ACX-38	Abbott&Cobb	59	145	29	32	26
18	Stratford58x59	GH1644x1645	59	180	20	42	26
19	Marketmore 86	Check	56	127	26	42	26
20	Cherokee 87	Gy57uxP87	55	152	19	46	26
21	G83xNC-62	GH126x131	54	136	40	31	26
22	Ashley	Check	54	132	27	35	26
23	G57xNC-62	GH125x131	53	142	19	52	26
24	SVR147-10461	Seminis	50	122	25	41	26
25	G57xNC-59	GH1648x1650	45	146	21	41	26
26	Dasher II	Seminis	43	142	27	27	26
27	G83xNC-63	GH1653x1655	36	120	15	51	26
28	G57xNC-63	GH125x132	34	107	24	43	26
LSD (5%)			39	67	14	13	1
Mean			65	158	28	35	26
CV (%)			36	26	31	23	1

Correlation (Marketable yield with % culls) = -0.32**

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	Speedway	Seminis	92	48	129	67	141	73	174	90	181	94
2	SVR147-10463	Seminis	84	41	107	53	119	59	179	88	195	96
3	G83xNC-58	GH126x127	64	33	105	53	111	56	149	76	163	83
4	WA-3003	WesternSeed	81	50	101	62	110	68	142	86	149	90
5	G83xNC-59	GH1652x1654	72	33	98	52	120	64	161	82	180	90
6	Stratford58x59	GH1644x1645	77	43	96	53	113	62	162	90	169	94
7	GeneralLee4440	HarrisMoran	68	32	96	46	106	51	179	86	188	90
8	SRQS-2926	SunSeeds	55	35	95	60	104	66	124	79	136	87
9	G57xNC-59	GH1648x1650	75	50	92	61	101	68	126	85	133	92
10	G57xNC-58	GH125x127	83	59	92	65	102	72	122	86	131	92
11	Intimidator	Seminis	71	47	91	61	97	66	132	85	139	89
12	Cherokee 87	Gy57uxP87	53	35	91	62	104	72	140	93	141	94
13	G57xNC-62	GH125x131	83	58	90	64	98	69	129	91	136	96
14	Sunshine62x63	GH1646x1647	70	41	90	52	108	63	154	89	162	93
15	SVR147-10461	Seminis	65	54	77	64	83	69	113	93	115	95
16	G83xNC-62	GH126x131	62	36	77	42	87	55	119	85	126	89
17	SVR147-10464	Seminis	61	38	76	46	86	52	126	76	145	86
18	G57xNC-63	GH125x132	42	36	75	64	82	69	99	91	102	96
19	ACX-18	Abbott&Cobb	22	12	75	40	91	49	135	73	162	88
20	G83xNC-63	GH1653x1655	51	42	70	58	79	66	104	87	104	87
21	Dasher II	Seminis	57	34	69	42	76	48	111	76	116	79
22	SRQS-3153	SunSeeds	48	28	60	35	76	45	124	73	146	87
23	ACX-38	Abbott&Cobb	41	28	56	38	62	42	121	83	127	87
24	Marketmore 86	Check	32	25	46	36	65	50	97	76	106	82
25	SRQS-2732	SunSeeds	15	9	41	23	71	41	107	63	128	75
26	Ashley	Check	20	16	41	31	61	47	91	69	100	76
27	Poinsett 76	CornellUniv	16	10	32	20	50	31	120	75	137	86
28	Marketmore 76	Check	15	12	30	24	47	37	90	72	107	85
	LSD (5%)		36	15	40	15	45	15	59	11	65	11
	Mean		56	35	78	49	91	57	130	82	140	88
	CV (%)		39	25	31	19	30	16	28	8	28	8

Correlation (Marketable yield with yield in harvests 1-2) = 0.68**

Correlation (Marketable yield with % of yield in harvests 1-2) = 0.10^{ns}

Table 25. Stage 3 spring slicer trial - fruit quality data (cultigens ranked by average quality).^z

Rank	Cultivar or line	Seed source	Average quality	Shape	Color	Seed- cell	Overall impression
1	SRQS-2926	SunSeeds	7.3	7	8	8	7
2	SVR147-10463	Seminis	7.1	7	8	8	6
3	SVR147-10464	Seminis	6.6	6	8	7	6
4	Sunshine62x63	GH1646x1647	6.6	6	8	7	6
5	ACX-18	Abbott&Cobb	6.4	6	7	7	6
6	GeneralLee4440	HarrisMoran	6.3	6	7	7	7
7	G83xNC-58	GH126x127	6.1	6	9	6	6
8	WA-3003	WesternSeed	6.0	6	8	6	6
9	Stratford58x59	GH1644x1645	6.0	6	7	6	6
10	SRQS-2732	SunSeeds	5.9	6	7	6	5
11	G83xNC-62	GH126x131	5.8	6	8	6	6
12	ACX-38	Abbott&Cobb	5.8	6	8	6	6
13	Marketmore 86	Check	5.8	5	7	7	5
14	Cherokee 87	Gy57uxP87	5.7	6	6	5	6
15	Poinsett 76	CornellUniv	5.7	6	6	6	5
16	G83xNC-59	GH1652x1654	5.7	5	7	6	6
17	G83xNC-63	GH1653x1655	5.6	5	8	6	5
18	Dasher II	Seminis	5.6	6	6	7	4
19	G57xNC-62	GH125x131	5.6	5	7	6	6
20	Speedway	Seminis	5.4	6	7	5	5
21	Intimidator	Seminis	5.4	6	8	5	6
22	SVR147-10461	Seminis	5.3	5	8	6	5
23	Marketmore 76	Check	5.3	5	6	5	6
24	SRQS-3153	SunSeeds	5.0	5	8	5	5
25	G57xNC-63	GH125x132	5.0	5	7	5	5
26	G57xNC-58	GH125x127	4.8	4	7	5	5
27	Ashley	Check	4.6	5	6	4	4
28	G57xNC-59	GH1648x1650	4.6	4	5	4	5
LSD (5%)			1.4	2	1	2	2
Mean			5.7	6	7	6	6
CV (%)			14.5	22	12	17	20

^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) = 0.24*

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

Rank	Cultivar or line	Seed source	Length (inch)	Diameter (inch)	Wt. (lb.)	Defect1°			Defect2°		
						2	4	6	2	4	6
1	SRQS-2926	SunSeeds	7.4	2.0	0.69	K	H	H	T	K	M
2	SVR147-10463	Seminis	7.8	2.2	0.79	K	H	H	H	K	M
3	SVR147-10464	Seminis	7.7	2.0	0.67	T	H	K	K	D	H
4	Sunshine62x63	GH1646x1647	8.0	2.2	0.83	H	K	K	D	H	H
5	ACX-18	Abbott&Cobb	8.5	2.0	0.75	T	K	T	K	T	H
6	GeneralLee4440	HarrisMoran	7.7	2.0	0.67	H	H	K	K	K	T
7	G83xNC-58	GH126x127	7.9	2.1	0.70	H	K	K	K	H	H
8	WA-3003	WesternSeed	7.6	2.1	0.67	K	H	K	H	D	H
9	Stratford58x59	GH1644x1645	8.4	2.2	0.88	K	H	H	H	K	M
10	SRQS-2732	SunSeeds	7.8	1.8	0.64	T	T	A	K	K	T
11	G83xNC-62	GH126x131	7.9	2.1	0.77	P	H	A	H	D	T
12	ACX-38	Abbott&Cobb	7.8	1.9	0.69	H	K	T	T	H	K
13	Marketmore 86	Check	7.9	2.2	0.76	H	H	A	A	K	D
14	Cherokee 87	Gy57uxP87	7.9	2.1	0.76	H	K	M	D	H	A
15	Poinsett 76	CornellUniv	7.1	2.0	0.59	P	H	H	H	K	K
16	G83xNC-59	GH1652x1654	8.1	2.1	0.78	P	H	K	K	K	K
17	G83xNC-63	GH1653x1655	7.8	2.1	0.75	H	T	H	K	K	A
18	Dasher II	Seminis	7.6	1.9	0.65	H	H	H	D	D	D
19	G57xNC-62	GH125x131	8.2	2.3	0.83	H	H	H	K	R	S
20	Speedway	Seminis	7.7	2.0	0.71	D	H	H	H	K	D
21	Intimidator	Seminis	7.6	2.1	0.73	K	K	H	H	H	D
22	SVR147-10461	Seminis	7.3	2.0	0.66	H	H	H	C	D	M
23	Marketmore 76	Check	7.6	2.1	0.67	H	H	A	A	K	T
24	SRQS-3153	SunSeeds	7.3	2.1	0.67	H	H	H	C	D	D
25	G57xNC-63	GH125x132	8.2	2.4	0.89	P	K	H	D	H	D
26	G57xNC-58	GH125x127	8.0	2.2	0.80	P	H	K	H	D	H
27	Ashley	Check	7.9	2.1	0.71	H	M	M	M	T	A
28	G57xNC-59	GH1648x1650	7.4	2.2	0.74	P	H	H	H	D	M
LSD (5%)			0.7	0.2	0.13						
Mean			7.8	2.1	0.73						
CV (%)			5.1	5.8	11.11						

^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 27. Stage 3 spring slicer trial - fruit keeping ability data (cultigens are ranked by % weight loss).

Rank	Cultivar or line	Seed source	Weight loss (%) ^Z	Rating (0 - 9) ^Y		Firm- ness (lb.) ^X
				Shriv- eling	Rots & disease	
1	SRQS-2926	SunSeeds	8	2	1	18
2	SVR147-10463	Seminis	10	2	1	18
3	SVR147-10464	Seminis	11	3	1	17
4	Sunshine62x63	GH1646x1647	10	4	1	15
5	ACX-18	Abbott&Cobb	11	3	3	16
6	GeneralLee4440	HarrisMoran	11	3	1	18
7	G83xNC-58	GH126x127	10	4	3	12
8	WA-3003	WesternSeed	10	1	1	15
9	Stratford58x59	GH1644x1645	10	4	1	14
10	SRQS-2732	SunSeeds	10	2	1	17
11	G83xNC-62	GH126x131	9	3	1	14
12	ACX-38	Abbott&Cobb	9	3	2	15
13	Marketmore 86	Check	10	4	1	18
14	Cherokee 87	Gy57uxP87	12	2	1	19
15	Poinsett 76	CornellUniv	12	3	1	16
16	G83xNC-59	GH1652x1654	10	1	1	15
17	G83xNC-63	GH1653x1655	10	4	2	14
18	Dasher II	Seminis	9	4	1	19
19	G57xNC-62	GH125x131	11	4	3	16
20	Speedway	Seminis	12	2	1	17
21	Intimidator	Seminis	2	3	2	19
22	SVR147-10461	Seminis	10	3	3	15
23	Marketmore 76	Check	10	3	1	16
24	SRQS-3153	SunSeeds	9	3	1	16
25	G57xNC-63	GH125x132	12	3	3	18
26	G57xNC-58	GH125x127	13	2	1	17
27	Ashley	Check	10	3	1	17
28	G57xNC-59	GH1648x1650	13	4	1	18
LSD (5%)			5	2	2	3
Mean			10	3	1	16
CV (%)			28	48	95	11

^Z After storage at room temperature for 8 days in open kraft paper bags.

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

^X Firmness after storage using Magness-Taylor fruit punch tester.

Correlation (Weight loss with shriveling) = 0.05^{ns}

Correlation (Weight loss with firmness) = -0.28*

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 ^z	Early yield (cwt/A)	Earli- ness (%) ^x	Vine size ^w	Vine color ^w
1	G57xNC-58	GH125x127	9	92	65	7	6
2	G57xNC-62	GH125x131	8	90	64	8	5
3	G57xNC-63	GH125x132	8	75	64	6	4
4	SVR147-10461	Seminis	8	77	64	8	6
5	G57xNC-59	GH1648x1650	8	92	61	8	6
6	WA-3003	WesternSeed	7	101	62	8	7
7	Speedway	Seminis	7	129	67	7	7
8	GeneralLee4440	HarrisMoran	7	96	46	8	6
9	Dasher II	Seminis	7	69	42	7	6
10	Intimidator	Seminis	7	91	61	7	5
11	SRQS-3153	SunSeeds	7	60	35	6	8
12	ACX-38	Abbott&Cobb	7	56	38	7	8
13	SVR147-10464	Seminis	6	76	46	8	6
14	ACX-18	Abbott&Cobb	6	75	40	7	7
15	G83xNC-58	GH126x127	6	105	53	7	6
16	Sunshine62x63	GH1646x1647	6	90	52	6	5
17	SVR147-10463	Seminis	5	107	53	8	9
18	Cherokee 87	Gy57uxP87	5	91	62	7	6
19	G83xNC-62	GH126x131	5	77	42	7	5
20	Marketmore 86	Check	5	46	36	6	7
21	G83xNC-59	GH1652x1654	5	98	52	7	4
22	G83xNC-63	GH1653x1655	5	70	58	6	5
23	Stratford58x59	GH1644x1645	5	96	53	6	5
24	SRQS-2926	SunSeeds	4	95	60	8	5
25	Marketmore 76	Check	4	30	24	7	6
26	Poinsett 76	CornellUniv	3	32	20	7	7
27	SRQS-2732	SunSeeds	3	41	23	6	9
28	Ashley	Check	3	41	31	6	5
	LSD (5%)		2	40	15	2	2
	Mean		6	78	49	7	6
	CV (%)		20	31	19	14	15

^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.

^wVine size & color are rated 1 (small or yellow green) to 9 (large or dark green). Correlation (Marketable yield with gynoecious rating) = 0.08^{ns}

Table 29. Stage 3 spring slicer trial - disease ratings (cultigens ranked by anthracnose resistance).^z

Rank	Cultivar or line	Seed source	Anthracnose
1	SVR147-10461	Seminis	1.0
2	G57xNC-59	GH1648x1650	1.0
3	G83xNC-62	GH126x131	1.0
4	Poinsett 76	CornellUniv	1.0
5	GeneralLee4440	HarrisMoran	1.3
6	SVR147-10463	Seminis	1.3
7	Ashley	Check	1.3
8	Cherokee 87	Gy57uxP87	1.7
9	G83xNC-63	GH1653x1655	1.7
10	SRQS-2926	SunSeeds	1.7
11	G57xNC-58	GH125x127	2.0
12	G57xNC-62	GH125x131	2.0
13	WA-3003	WesternSeed	2.0
14	Intimidator	Seminis	2.0
15	Marketmore 86	Check	2.0
16	SRQS-2732	SunSeeds	2.0
17	G57xNC-63	GH125x132	2.3
18	Dasher II	Seminis	2.3
19	G83xNC-58	GH126x127	2.3
20	Stratford58x59	GH1644x1645	2.3
21	Marketmore 76	Check	2.3
22	Speedway	Seminis	2.7
23	ACX-38	Abbott&Cobb	2.7
24	SVR147-10464	Seminis	2.7
25	Sunshine62x63	GH1646x1647	2.7
26	G83xNC-59	GH1652x1654	3.0
27	SRQS-3153	SunSeeds	3.7
28	ACX-18	Abbott&Cobb	4.3
	LSD (5%)		1.7
	Mean		2.1
	CV (%)		48.9

^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 anthracnose rating) = 0.09^{ns}

Table 30. Stage 3 spring slicer trial - selection indexes (cultigens ranked by SWI1).^z

Rank	Cultivar or line	Seed source	Simple weighted indexes		Average rank indexes	
			SWI1	SWI2	ARI1	ARI2
1	SVR147-10463	Seminis	6.8	6.3	7.0	7.8
2	GeneralLee4440	HarrisMoran	6.4	6.0	9.4	9.8
3	G83xNC-58	GH126x127	6.4	5.9	10.8	11.3
4	SRQS-2926	SunSeeds	6.4	6.1	8.3	9.7
5	Speedway	Seminis	6.3	5.8	13.4	11.9
6	G83xNC-59	GH1652x1654	6.2	5.8	14.2	14.4
7	WA-3003	WesternSeed	6.2	5.9	12.4	12.1
8	Sunshine62x63	GH1646x1647	6.0	5.7	11.1	12.1
9	Stratford58x59	GH1644x1645	5.7	5.4	13.6	13.6
10	SVR147-10464	Seminis	5.7	5.5	12.4	13.6
11	Intimidator	Seminis	5.7	5.5	14.7	14.1
12	Cherokee 87	Gy57uxP87	5.5	5.4	14.5	13.4
13	ACX-18	Abbott&Cobb	5.5	5.1	13.3	15.0
14	G83xNC-62	GH126x131	5.5	5.2	13.0	12.9
15	G57xNC-62	GH125x131	5.4	5.3	15.0	14.3
16	G57xNC-58	GH125x127	5.4	5.3	17.3	15.8
17	SVR147-10461	Seminis	5.3	5.3	15.7	14.2
18	G57xNC-59	GH1648x1650	5.2	5.1	17.3	15.1
19	SRQS-2732	SunSeeds	5.1	4.8	15.0	15.9
20	ACX-38	Abbott&Cobb	5.0	4.8	16.3	17.3
21	Dasher II	Seminis	4.9	4.7	16.9	17.0
22	G83xNC-63	GH1653x1655	4.9	5.0	17.3	16.8
23	SRQS-3153	SunSeeds	4.9	4.7	18.8	19.1
24	Poinsett 76	CornellUniv	4.9	4.7	14.6	15.1
25	Marketmore 86	Check	4.8	4.7	16.9	17.6
26	G57xNC-63	GH125x132	4.7	4.8	18.7	17.4
27	Ashley	Check	4.5	4.3	19.6	19.0
28	Marketmore 76	Check	4.4	4.3	18.6	19.7
	LSD (5%)		1.3	0.9	5.7	5.2
	Mean		5.5	5.3	14.5	14.5
	CV (%)		13.9	10.9	24.0	21.8

^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) = 0.83**

Correlation (Marketable yield with ARI1) = -0.59**

Summer (Stage 4) Slicing Cucumber Trial 2003

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 17 July, and harvested 5 times (Mondays and Thursdays) between 28 August and 15 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:

01	G83xNC-58	NCState Univ
02	NC-Stratford (NC-58x59)	NCState Univ
03	SVR14710463	Seminis
04	SRQS-2926	SunSeeds
05	G83xNC-59	NCState Univ
06	SVR14710461	Seminis
07	G83xNC-63	NCState Univ
08	General Lee	Harris Moran
09	G57xNC-59	NCState Univ
10	G57xNC-63	NCState Univ

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	SRQS-2926	SunSeeds	78	160	31	30	26
2	G83xNC-58	02GH126x127	77	174	29	34	26
3	NC-Stratford	02GH1644x1645	70	140	31	38	26
4	Marketmore76	Check	66	128	25	49	26
5	G83xNC-59	02GH1652x1654	65	157	22	46	26
6	G83xNC-63	02GH1653x1655	58	143	26	35	26
7	G57xNC-62	02GH125x131	54	119	21	50	26
8	General Lee	Harris Moran	53	146	27	18	26
9	SRQS-2732	SunSeeds	47	138	30	14	26
10	G83xNC-62	02GH126x131	47	85	22	28	26
11	SVR14710461	Seminis	47	128	26	30	25
12	G57xNC-59	02GH1648x1650	44	119	18	45	26
13	SVR14710463	Seminis	44	112	31	20	26
14	ACX-18	Abbott&Cobb	44	106	28	30	26
15	G57xNC-58	02GH125x127	39	98	18	49	26
16	NC-Sunshine	02GH1646x1647	39	85	54	19	26
17	Speedway	Seminis	34	96	20	40	26
18	Intimidator	Seminis	27	70	20	48	26
19	SVR14710464	Seminis	25	70	19	46	26
20	G57xNC-63	02GH125x132	24	63	26	33	26
21	Marketmore86	Check	24	85	17	28	26
22	WA-3003	WesternSeed	23	99	13	35	26
23	SRQS-3153	SunSeeds	22	83	15	45	26
24	Dasher II	Seminis	22	64	13	25	26
25	Cherokee87	Check	19	103	10	47	26
26	Ashley	Check	14	62	13	32	26
27	ACX-38	Abbott&Cobb	12	98	8	35	26
28	Poinsett76	CornellUniv	9	61	8	32	26
LSD (5%)			56	88	24	26	1
Mean			40	107	22	35	26
CV (%)			85	50	67	45	2

Correlation (Marketable yield with % culls) = -0.38**

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 or line	Cultivar	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-58	02GH126x127	29	14	91	50	141	80	148	85	161	94
2	Marketmore76	Check	38	22	82	44	100	61	114	85	116	94
3	G83xNC-59	02GH1652x1654	7	3	80	55	120	85	132	89	144	94
4	G57xNC-59	02GH1648x1650	33	25	76	65	95	80	101	84	106	87
5	SRQS-2926	SunSeeds	1	0	69	47	97	62	122	75	134	84
6	NC-Stratford	02GH1644x1645	18	11	69	49	101	70	119	83	129	92
7	SVR14710461	Seminis	12	8	67	52	96	74	119	92	123	95
8	G83xNC-63	02GH1653x1655	9	7	65	45	105	74	111	78	121	85
9	SVR14710463	Seminis	6	5	61	54	77	68	94	84	100	89
10	G57xNC-62	02GH125x131	46	34	59	50	92	78	106	87	113	94
11	G83xNC-62	02GH126x131	10	8	56	44	71	56	74	58	82	64
12	General Lee	Harris Moran	11	7	56	39	94	65	119	81	131	90
13	Speedway	Seminis	16	15	55	54	77	78	84	87	86	89
14	NC-Sunshine	02GH1646x1647	11	8	50	39	69	88	81	97	84	99
15	G57xNC-58	02GH125x127	30	21	47	42	88	84	97	99	97	99
16	Cherokee87	Check	2	2	41	38	68	66	72	70	81	79
17	WA-3003	WesternSeed	13	12	41	44	64	67	81	81	90	92
18	SVR14710464	Seminis	2	4	31	42	44	60	58	84	64	93
19	ACX-38	Abbott&Cobb	2	2	30	29	63	66	76	78	81	83
20	SRQS-3153	SunSeeds	5	6	29	32	59	71	62	74	72	85
21	Intimidator	Seminis	7	8	29	40	41	63	55	83	59	90
22	ACX-18	Abbott&Cobb	2	2	24	19	60	54	73	69	90	86
23	Dasher II	Seminis	4	4	23	25	45	45	55	55	60	61
24	Ashley	Check	0	0	10	13	32	46	53	85	59	94
25	Marketmore86	Check	0	0	9	8	36	47	51	68	67	84
26	SRQS-2732	SunSeeds	0	0	5	3	38	28	90	67	126	91
27	G57xNC-63	02GH125x132	0	0	3	3	41	63	55	87	60	95
28	Poinsett76	CornellUniv	0	0	1	1	13	21	31	49	37	58
LSD (5%)			25	13	52	27	68	28	76	27	82	28
Mean			11	8	45	37	72	64	87	79	96	87
CV (%)			134	96	71	46	57	27	54	20	52	20

Correlation (Marketable yield with yield in harvests 1-2) = 0.84**

Correlation (Marketable yield with % of yield in harvests 1-2) = 0.44**

Table 33. Stage 4 summer slicer trial - fruit quality data (cultigens ranked by average quality).^z

Rank	Cultivar or line	Seed source	Average quality	Shape	Color	Seed- cell	Overall impression
1	SVR14710463	Seminis	7.6	7	8	9	7
2	ACX-18	Abbott&Cobb	7.1	7	7	8	6
3	General Lee	Harris Moran	6.9	6	7	8	7
4	SRQS-2732	SunSeeds	6.9	7	8	7	7
5	SRQS-2926	SunSeeds	6.9	6	6	8	7
6	NC-Stratford	02GH1644x1645	6.8	6	8	7	7
7	G57xNC-63	02GH125x132	6.8	6	7	8	6
8	SVR14710464	Seminis	6.7	7	8	7	6
9	G83xNC-58	02GH126x127	6.6	7	8	7	6
10	Dasher II	Seminis	6.6	6	6	8	6
11	Marketmore86	Check	6.4	6	7	7	6
12	NC-Sunshine	02GH1646x1647	6.4	6	8	7	6
13	G83xNC-59	02GH1652x1654	6.3	7	6	6	6
14	SRQS-3153	SunSeeds	6.3	6	7	8	5
15	WA-3003	WesternSeed	6.3	6	8	7	6
16	SVR14710461	Seminis	6.2	6	9	6	7
17	Speedway	Seminis	6.2	6	7	8	5
18	G83xNC-63	02GH1653x1655	6.1	6	8	7	6
19	G83xNC-62	02GH126x131	6.1	6	7	7	6
20	Intimidator	Seminis	6.1	5	7	7	6
21	Marketmore76	Check	6.0	6	7	7	5
22	G57xNC-62	02GH125x131	6.0	5	7	7	6
23	ACX-38	Abbott&Cobb	6.0	5	7	7	6
24	Ashley	Check	5.8	5	6	7	5
25	G57xNC-59	02GH1648x1650	5.6	5	6	7	5
26	G57xNC-58	02GH125x127	5.4	5	6	7	5
27	Poinsett76	CornellUniv	5.4	5	7	6	5
28	Cherokee87	Check	5.2	5	6	7	4
	LSD (5%)		1.2	2	2	1	2
	Mean		6.3	6	7	7	6
	CV (%)		11.3	20	15	10	17

^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 34. Stage 4 summer slicer trial - fruit dimensions and comments (cultigens ranked by average quality rating).^z

Rank	Cultivar or line	Seed source	Length (inch)	Diameter (inch)	Wt. (lb.)	Defect1°			Defect2°		
						2	4	6	2	4	6
1	SVR14710463	Seminis	7.9	2.0	0.83	H	C	K	T	T	T
2	ACX-18	Abbott&Cobb	8.3	2.0	0.65	T	D	K	G	T	T
3	General Lee	Harris Moran	8.0	2.1	0.58	M	K	K	H	T	H
4	SRQS-2732	SunSeeds	8.1	2.0	0.58	G	K	K	T	H	I
5	SRQS-2926	SunSeeds	7.8	2.1	0.65	H	K	K	D	T	T
6	NC-Stratford	02GH1644x1645	7.8	2.1	0.60	K	K	H	H	D	N
7	G57xNC-63	02GH125x132	8.0	2.1	0.63	K	K	H	T	T	K
8	SVR14710464	Seminis	7.7	2.1	0.50	K	H	D	H	K	H
9	G83xNC-58	02GH126x127	8.0	2.0	0.57	H	H	K	T	K	T
10	Dasher II	Seminis	7.3	2.0	0.52	H	N	T	T	C	D
11	Marketmore86	Check	7.3	2.0	0.53	H	K	K	M	T	H
12	NC-Sunshine	02GH1646x1647	7.5	2.0	0.48	M	K	H	H	H	D
13	G83xNC-59	02GH1652x1654	7.4	2.0	0.60	K	M	K	M	D	H
14	SRQS-3153	SunSeeds	7.6	2.0	0.68	H	H	K	T	D	T
15	WA-3003	WesternSeed	7.5	1.9	0.52	H	K	H	T	T	D
16	SVR14710461	Seminis	7.7	2.0	0.70	K	H	K	H	K	C
17	Speedway	Seminis	7.1	1.9	0.65	T	D	H	K	N	N
18	G83xNC-63	02GH1653x1655	8.1	2.0	0.87	K	C	K	T	D	D
19	G83xNC-62	02GH126x131	7.9	2.0	0.57	T	D	K	K	T	H
20	Intimidator	Seminis	7.8	1.9	0.52	K	K	H	T	T	T
21	Marketmore76	Check	7.8	2.0	0.53	T	H	H	H	T	D
22	G57xNC-62	02GH125x131	7.6	2.1	0.53	M	H	H	H	T	N
23	ACX-38	Abbott&Cobb	7.9	2.0	0.70	H	K	D	M	T	I
24	Ashley	Check	7.3	2.0	0.60	G	M	T	T	H	M
25	G57xNC-59	02GH1648x1650	7.7	2.1	0.49	M	H	H	H	T	D
26	G57xNC-58	02GH125x127	7.8	2.2	0.59	M	H	H	H	T	D
27	Poinsett76	CornellUniv	6.5	1.9	0.50	H	D	H	T	H	C
28	Cherokee87	Check	7.2	2.0	0.73	M	M	D	H	D	M
LSD (5%)			0.8	0.2	0.15						
Mean			7.7	2.0	0.60						
CV (%)			6.1	5.9	14.35						

^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 35. Stage 4 summer slicer trial - sex expression and vine data (cultigens ranked by gynoecious rating).

Rank	Cultivar or line	Seed source	Gyn. rating ^z	Early yield (cwt/A)	Earli- ness (%) ^x	Vine size ^w	Vine color ^w
1	G57xNC-62	02GH125x131	9	59	50	7	8
2	Marketmore76	Check	9	82	44	6	8
3	G57xNC-59	02GH1648x1650	9	76	65	6	8
4	G57xNC-58	02GH125x127	9	47	42	6	8
5	SRQS-3153	SunSeeds	9	29	32	5	8
6	ACX-18	Abbott&Cobb	8	24	19	7	7
7	SVR14710463	Seminis	8	61	54	7	9
8	SVR14710461	Seminis	8	67	52	6	7
9	Speedway	Seminis	8	55	54	6	8
10	SRQS-2926	SunSeeds	7	69	47	8	7
11	Intimidator	Seminis	7	29	40	7	8
12	General Lee	Harris Moran	7	56	39	7	8
13	WA-3003	WesternSeed	7	41	44	7	8
14	ACX-38	Abbott&Cobb	6	30	29	7	9
15	G83xNC-63	02GH1653x1655	6	65	45	7	7
16	G83xNC-62	02GH126x131	6	56	44	7	6
17	NC-Sunshine	02GH1646x1647	6	50	39	4	8
18	Dasher II	Seminis	6	23	25	6	7
19	G83xNC-58	02GH126x127	5	91	50	7	6
20	G83xNC-59	02GH1652x1654	5	80	55	7	7
21	SVR14710464	Seminis	5	31	42	6	8
22	Cherokee87	Check	5	41	38	7	7
23	Ashley	Check	5	10	13	6	6
24	Poinsett76	CornellUniv	5	1	1	5	8
25	G57xNC-63	02GH125x132	5	3	3	5	6
26	NC-Stratford	02GH1644x1645	4	69	49	6	7
27	SRQS-2732	SunSeeds	4	5	3	6	9
28	Marketmore86	Check	4	9	8	6	7
	LSD (5%)		2	52	27	2	2
	Mean		6	45	37	6	7
	CV (%)		17	71	46	19	13

^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) = 0.11^{ns}

Table 36. Stage 4 summer slicer trial - disease ratings (cultigens ranked by average disease resistance).^z

Rank	Cultivar or line	Seed source	Anthraco- nose
1	Poinsett76	CornellUniv	1.3
2	SVR14710461	Seminis	2.0
3	ACX-38	Abbott&Cobb	2.0
4	G57xNC-59	02GH1648x1650	2.3
5	SRQS-3153	SunSeeds	2.3
6	SVR14710463	Seminis	2.3
7	General Lee	Harris Moran	2.3
8	G83xNC-63	02GH1653x1655	2.3
9	WA-3003	WesternSeed	3.0
10	SVR14710464	Seminis	3.0
11	Dasher II	Seminis	3.7
12	NC-Stratford	02GH1644x1645	3.7
13	SRQS-2732	SunSeeds	3.7
14	Speedway	Seminis	4.0
15	Cherokee87	Check	4.0
16	Ashley	Check	4.0
17	Intimidator	Seminis	4.3
18	G83xNC-62	02GH126x131	4.3
19	G83xNC-58	02GH126x127	4.3
20	G57xNC-63	02GH125x132	4.3
21	SRQS-2926	SunSeeds	4.7
22	G83xNC-59	02GH1652x1654	4.7
23	Marketmore86	Check	5.0
24	G57xNC-62	02GH125x131	5.3
25	Marketmore76	Check	5.3
26	G57xNC-58	02GH125x127	5.3
27	ACX-18	Abbott&Cobb	5.3
28	NC-Sunshine	02GH1646x1647	6.0
	LSD (5%)		2.3
	Mean		3.8
	CV (%)		37.5

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

Correlation (Marketable yield with anthracnose rating) = 0.06^{ns}

Table 37. Stage 4 summer slicer trial - selection indexes (cultigens ranked by SWI1).^z

Rank	Cultivar or line	Seed source	Simple weighted indexes		Average rank indexes	
			SWI1	SWI2	ARI1	ARI2
1	G83xNC-58	02GH126x127	5.8	5.2	10.9	10.8
2	NC-Stratford	02GH1644x1645	5.4	5.1	10.3	10.7
3	SVR14710463	Seminis	5.3	5.1	7.2	8.0
4	SRQS-2926	SunSeeds	5.3	5.0	10.8	11.6
5	G83xNC-59	02GH1652x1654	5.2	4.9	14.1	13.6
6	SVR14710461	Seminis	5.2	5.0	11.6	10.5
7	G83xNC-63	02GH1653x1655	5.2	4.8	12.7	11.7
8	General Lee	Harris Moran	5.2	4.8	10.0	10.2
9	Marketmore76	Check	5.1	4.6	15.6	15.2
10	G57xNC-59	02GH1648x1650	5.0	4.8	16.0	13.5
11	G57xNC-62	02GH125x131	4.5	4.4	15.6	15.1
12	G83xNC-62	02GH126x131	4.5	4.2	15.4	15.4
13	Speedway	Seminis	4.4	4.4	14.9	14.4
14	WA-3003	WesternSeed	4.3	4.2	14.4	14.0
15	SRQS-2732	SunSeeds	4.2	3.8	13.6	14.3
16	SVR14710464	Seminis	4.2	4.1	13.5	13.9
17	SRQS-3153	SunSeeds	4.2	3.9	13.9	14.0
18	NC-Sunshine	02GH1646x1647	4.2	4.0	15.3	16.2
19	ACX-18	Abbott&Cobb	4.1	3.8	13.1	14.9
20	ACX-38	Abbott&Cobb	4.0	3.8	15.7	14.7
21	G57xNC-58	02GH125x127	3.9	3.8	18.9	18.1
22	Dasher II	Seminis	3.8	3.6	15.4	16.6
23	Cherokee87	Check	3.7	3.6	19.4	17.8
24	Intimidator	Seminis	3.7	3.7	16.6	17.0
25	G57xNC-63	02GH125x132	3.5	3.2	15.4	17.6
26	Marketmore86	Check	3.5	3.2	17.3	18.4
27	Poinsett76	CornellUniv	3.4	3.0	19.4	18.5
28	Ashley	Check	3.2	3.0	19.1	19.4
	LSD (5%)		1.7	1.4	6.3	6.3
	Mean		4.4	4.2	14.5	14.5
	CV (%)		23.4	20.4	26.6	26.7

^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 (Marketable yield with SWI1) = 0.88**

Correlation (Marketable yield with ARI1) = -0.50**