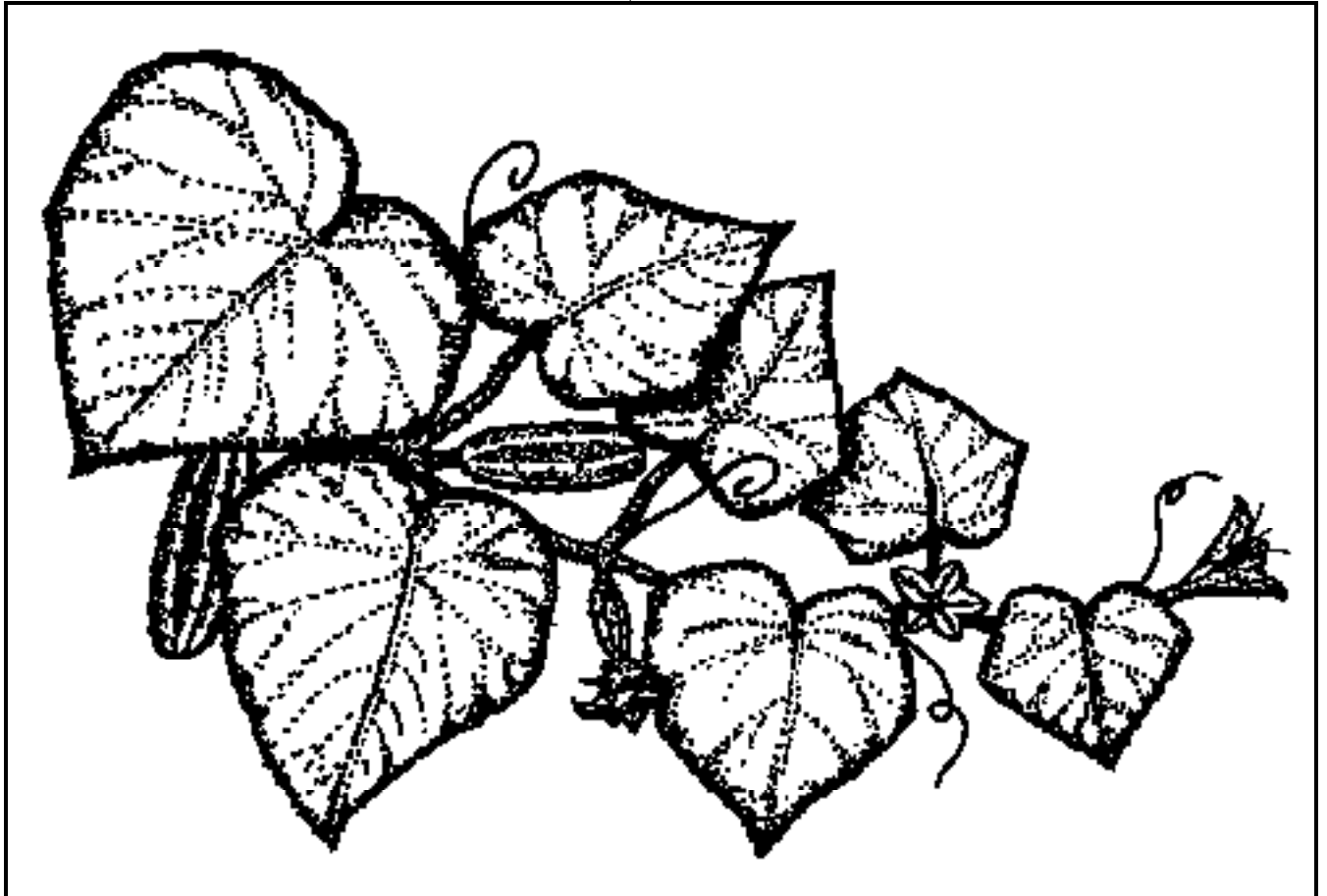


\$5.00

# NC State Cucumber Trials 2011



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The authors gratefully acknowledge the assistance of Rodney Mazingo 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:

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

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

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

### Progression of breeding lines through trials:

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

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

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# Pickling Cucumbers

## Brinestock Evaluation

### Spring (Stage 3) Pickle Trial

Todd C. Wehner and Tammy L. Ellington<sup>z</sup>

Department of Horticultural Science

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#### Introduction

Cucumbers from harvests 1, 3 and 5 of the stage 3 spring pickling cucumber trial were each placed in brine tanks at Mt. Olive Pickle Co. The tanks were purged with nitrogen to remove excess carbon dioxide from the brine.

#### Methods

The cultigens (cultivars and breeding lines) were evaluated for fruit quality (shape, external color, texture, seedcell size, and lot uniformity), firmness, bloaters, and other defects in October. Quality was evaluated by judges from industry: Phil Denlinger, Jimmy Davis, and Bob Quinn (Mt. Olive), John Cates (Addis Cates Co.), Steve Apol (Toisnot), Laura Kornegay (Nash Produce), Chris Ware (Harris Moran), and Ken McCammom (Bejo).

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

#### Results

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

#### Summary

- The cultigens with best fruit quality in brinestock were EGP-410, NC-Duplin, Nun-55505, EXP08-7814, EXP70-051, MacArthur, Treasure, CrossCountry, NC-Danbury, Vlasstar, Excursion, PCX-112, and NC-Dawson.
- Most cultigens were bloater resistant; several were susceptible: Nun-5539.
- The firmest cultigens were Sumter, EXP70-051, EGP-410, NC-Danbury, Treasure, Nun-55505, NC-Denton, PCX-112, NC-Duplin, and EXP08-7814.
- 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 Quinn who assigned the lowest. Analysis of variance indicated significant differences among judges for the way they rated fruit quality. However, interaction of judge with cultigen was non-significant (the judges agreed on which were good cultigens, and which were bad cultigens).

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<sup>z</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	EGP-410	EmeraldSeeds	6.7	6.5	6.6	6.8	6.8	6.9
2	NC-Duplin	NCState Univ	6.6	7.0	6.6	6.4	6.0	7.0
3	Nun-55505	BayerNunhems	6.5	6.3	6.7	6.5	6.7	6.5
4	EXP08-7814	Bejo Seeds	6.4	5.6	6.6	6.9	6.5	6.3
5	EXP70-051	Bejo Seeds	6.3	6.3	6.9	6.0	6.0	6.5
6	MacArthur	BayerNunhems	6.3	6.2	6.5	6.3	6.0	6.3
7	Treasure	HM-Clause	6.3	6.1	5.7	6.5	6.5	6.6
8	CrossCountry	HM-Clause	6.3	5.9	6.2	6.6	6.2	6.3
9	NC-Danbury	NCState Univ	6.3	6.3	6.2	6.4	6.3	6.2
10	Vlasstar	Mon-Seminis	6.2	5.7	6.3	6.4	6.2	6.6
11	Excursion	Mon-Seminis	6.2	5.7	6.5	6.3	6.3	6.4
12	PCX-112	Baker Seeds	6.2	6.1	6.8	6.0	5.8	6.5
13	NC-Dawson	NCState Univ	6.2	6.0	6.1	6.6	5.8	6.5
14	Wainwright	BayerNunhems	6.2	5.9	6.1	6.4	6.2	6.5
15	Wealthy	HM-Clause	6.2	6.1	6.3	6.2	5.9	6.5
16	EGP-427	EmeraldSeeds	6.2	6.0	6.6	6.1	6.0	6.3
17	NC-Davie	ZeraimGedera	6.2	6.6	6.3	5.6	5.6	6.6
18	Sumter	Clemson Univ	6.2	5.7	5.5	6.7	6.7	6.2
19	NC-Denton	NCState Univ	6.1	5.5	6.2	6.5	5.8	6.3
20	Feisty(9464)	HM-Clause	6.1	6.0	6.3	5.9	5.8	6.3
21	Lafayette	BayerNunhems	6.1	5.8	6.6	5.8	5.8	6.2
22	EXP08-7851	Bejo Seeds	6.0	5.8	6.3	6.0	5.9	6.3
23	Vlasplik	Mon-Seminis	6.0	5.9	6.0	6.0	5.7	6.3
24	Calypso	NCState Univ	6.0	5.3	5.0	6.8	6.6	6.3
25	EXP09-2431	Bejo Seeds	5.9	5.7	6.3	5.9	6.0	5.9
26	Raleigh	NCState Univ	5.9	5.5	6.0	5.8	5.9	6.3
27	Johnston	NCState Univ	5.9	5.6	6.3	5.8	5.5	6.3
28	Expedition	Mon-Seminis	5.9	5.5	6.2	5.8	5.5	6.2
29	Journey	Mon-Seminis	5.8	5.5	6.3	5.4	5.4	6.3
30	Nun-55504	BayerNunhems	5.7	5.7	6.8	5.0	4.9	6.3
31	Wis.SMR 18	Univ. Wis.	5.6	5.2	5.4	5.7	5.5	6.1
32	PCX-155	Baker Seeds	5.5	4.6	6.5	5.3	5.1	6.3
33	Nun-5539	BayerNunhems	5.5	5.6	6.5	4.7	4.7	6.0
34	HSX-2015	Hort AgSeeds	5.1	3.8	6.5	4.7	4.6	6.1
35	HSX-6022	Hort AgSeeds	4.2	3.4	5.2	3.1	3.3	6.2
CV (%)			11.4	18.9	12.7	18.8	18.3	14.3
Mean			6.0	5.7	6.2	6.0	5.8	6.3
LSD (5%)			0.4	0.6	0.4	0.6	0.6	0.5

<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) = 0.58\*\*  
Correlation (Texture with Seedcell) = 0.90\*\*

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	Lafayette	BayerNunhems	0	0	0	0
2	Journey	Mon-Seminis	0	0	0	0
3	HSX-6022	Hort AgSeeds	0	0	0	0
4	NC-Dawson	NCState Univ	0	0	0	0
5	EXP08-7814	Bejo Seeds	2	0	2	0
6	MacArthur	BayerNunhems	0	0	0	0
7	Treasure	HM-Clause	0	0	0	0
8	Excursion	Mon-Seminis	0	0	0	0
9	EXP08-7851	Bejo Seeds	0	0	0	0
10	Calypso	NCState Univ	0	0	0	0
11	Sumter	Clemson Univ	0	0	0	0
12	NC-Denton	NCState Univ	0	0	0	0
13	NC-Davie	ZeraimGedera	0	0	0	0
14	HSX-2015	Hort AgSeeds	3	0	0	3
15	Johnston	NCState Univ	1	1	0	0
16	NC-Duplin	NCState Univ	1	1	0	0
17	CrossCountry	HM-Clause	2	2	0	0
18	EXP09-2431	Bejo Seeds	2	2	0	0
19	Raleigh	NCState Univ	2	2	0	0
20	Vlasstar	Mon-Seminis	2	2	0	0
21	Nun-55505	BayerNunhems	3	3	0	0
22	Wealthy	HM-Clause	3	3	0	0
23	Wainwright	BayerNunhems	3	3	0	0
24	PCX-155	Baker Seeds	3	3	0	0
25	NC-Danbury	NCState Univ	3	3	0	0
26	Wis.SMR 18	Univ. Wis.	4	4	0	0
27	EGP-427	EmeraldSeeds	5	5	0	0
28	Vlaspik	Mon-Seminis	5	5	0	0
29	EGP-410	EmeraldSeeds	5	5	0	0
30	PCX-112	Baker Seeds	5	5	0	0
31	Expedition	Mon-Seminis	5	5	0	0
32	Feisty(9464)	HM-Clause	7	7	0	0
33	Nun-55504	BayerNunhems	7	7	0	1
34	EXP70-051	Bejo Seeds	10	7	0	3
35	Nun-5539	BayerNunhems	12	12	0	0
CV (%)			183	197	1025	671
Mean			3	2	0	0
LSD (5%)			8	8	1	2

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	EXP09-2431	Bejo Seeds	0	0	0	0
2	Nun-55505	BayerNunhems	0	0	0	0
3	EGP-427	EmeraldSeeds	0	0	0	0
4	EGP-410	EmeraldSeeds	0	0	0	0
5	EXP08-7814	Bejo Seeds	1	1	0	0
6	NC-Dawson	NCState Univ	1	0	0	1
7	Sumter	Clemson Univ	1	1	0	0
8	NC-Duplin	NCState Univ	1	1	1	0
9	Excursion	Mon-Seminis	2	1	0	1
10	Wis.SMR 18	Univ. Wis.	2	0	0	2
11	Vlasstar	Mon-Seminis	2	0	0	2
12	Wealthy	HM-Clause	2	0	0	2
13	NC-Denton	NCState Univ	2	2	1	0
14	Nun-55504	BayerNunhems	2	0	0	2
15	Treasure	HM-Clause	3	1	0	2
16	CrossCountry	HM-Clause	3	0	0	3
17	Vlaspik	Mon-Seminis	3	0	0	3
18	Wainwright	BayerNunhems	3	1	0	2
19	Calypso	NCState Univ	3	1	2	1
20	Feisty(9464)	HM-Clause	3	0	0	3
21	MacArthur	BayerNunhems	4	1	0	3
22	Lafayette	BayerNunhems	4	0	0	4
23	EXP08-7851	Bejo Seeds	4	1	0	3
24	PCX-155	Baker Seeds	5	1	0	4
25	Johnston	NCState Univ	5	1	1	3
26	Journey	Mon-Seminis	6	0	0	6
27	PCX-112	Baker Seeds	6	2	0	4
28	NC-Davie	ZerainGedera	7	4	1	2
29	Raleigh	NCState Univ	7	2	0	5
30	NC-Danbury	NCState Univ	8	3	2	2
31	Nun-5539	BayerNunhems	8	0	0	8
32	Expedition	Mon-Seminis	9	2	1	7
33	HSX-2015	Hort AgSeeds	12	0	0	12
34	EXP70-051	Bejo Seeds	13	12	0	2
35	HSX-6022	Hort AgSeeds	15	0	0	15
	CV (%)		99	164	439	135
	Mean		4	1	0	3
	LSD (5%)		7	3	2	6

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	Sumter	Clemson Univ	20.0	6.7	1	0	0	1
2	EXP70-051	Bejo Seeds	19.0	6.0	23	10	7	13
3	EGP-410	EmeraldSeeds	18.6	6.8	5	5	5	0
4	NC-Danbury	NCState Univ	18.6	6.4	11	3	3	8
5	Treasure	HM-Clause	18.6	6.5	3	0	0	3
6	Nun-55505	BayerNunhems	18.4	6.5	3	3	3	0
7	NC-Denton	NCState Univ	18.0	6.5	2	0	0	2
8	PCX-112	Baker Seeds	17.9	6.0	11	5	5	6
9	NC-Duplin	NCState Univ	17.7	6.4	3	1	1	1
10	EXP08-7814	Bejo Seeds	17.5	6.9	2	2	0	1
11	EGP-427	EmeraldSeeds	17.4	6.1	5	5	5	0
12	Vlaspik	Mon-Seminis	17.4	6.0	8	5	5	3
13	CrossCountry	HM-Clause	17.4	6.6	4	2	2	3
14	Calypso	NCState Univ	17.0	6.8	3	0	0	3
15	NC-Davie	ZerainGedera	17.0	5.6	7	0	0	7
16	PCX-155	Baker Seeds	16.8	5.3	8	3	3	5
17	EXP09-2431	Bejo Seeds	16.6	5.9	2	2	2	0
18	Vlasstar	Mon-Seminis	16.5	6.4	4	2	2	2
19	NC-Dawson	NCState Univ	16.5	6.6	1	0	0	1
20	Wealthy	HM-Clause	16.2	6.2	5	3	3	2
21	Raleigh	NCState Univ	16.2	5.8	9	2	2	7
22	Johnston	NCState Univ	16.1	5.8	6	1	1	5
23	Wainwright	BayerNunhems	16.1	6.4	6	3	3	3
24	Excursion	Mon-Seminis	16.0	6.3	2	0	0	2
25	MacArthur	BayerNunhems	16.0	6.3	4	0	0	4
26	Wis.SMR 18	Univ. Wis.	15.9	5.7	6	4	4	2
27	Feisty(9464)	HM-Clause	15.7	5.9	10	7	7	3
28	Journey	Mon-Seminis	15.6	5.4	6	0	0	6
29	EXP08-7851	Bejo Seeds	15.5	6.0	4	0	0	4
30	Lafayette	BayerNunhems	15.3	5.8	4	0	0	4
31	Expedition	Mon-Seminis	15.3	5.8	14	5	5	9
32	Nun-5539	BayerNunhems	14.7	4.7	20	12	12	8
33	Nun-55504	BayerNunhems	13.8	5.0	10	7	7	2
34	HSX-2015	Hort AgSeeds	13.7	4.7	14	3	0	12
35	HSX-6022	Hort AgSeeds	8.3	3.1	15	0	0	15
CV (%)			8.0	18.8	104	183	197	99
Mean			16.5	6.0	7	3	2	4
LSD (5%)			2.1	0.6	12	8	8	7

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

Correlation of Texture with: Firmness = 0.45\*\*, Balloon = -0.51\*\*

Correlation of Texture with: Honeycomb = -0.06ns, Soft centers = -0.66\*\*



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

Rank	Judge	Average quality	Shape	External color	Texture	Seed cell	Uniformity
1	Apol	7.1	7.1	7.1	7.1	7.1	7.1
2	Kornegay	6.9	7.0	6.9	7.1	6.7	6.7
3	Davis	6.4	5.8	6.8	6.8	6.6	5.9
4	Denlinger	6.3	5.8	6.8	5.8	5.8	7.1
5	McCammom	5.8	5.8	6.3	5.6	5.8	5.7
6	Ware	5.7	5.4	5.9	5.8	5.8	5.6
7	Cates	5.2	4.7	5.2	5.1	5.2	5.5
8	Quinn	4.8	4.3	4.8	4.4	3.5	7.1

<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).

# Pickling Cucumbers

## Preliminary (Stage 1) Pickling Cucumber Trial 2011

The stage 1 pickle trial was not run this year.

## Observational (Stage 2) Pickling Cucumber Trial 2011

The stage 2 pickle trial was not run this year.

## Summer (Stage 4) Pickling Cucumber Trial 2011

The stage 4 pickle trial was not run this year.

## Spring (Stage 3) Pickling Cucumber Trial 2011

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 16 May, and harvested 6 times (Mondays and Thursdays) between 13 and 30 June.

### Data Collection

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

### Results

The following cultigens performed well, and could be advanced to the next stage:

1	Nun-5539	BayerNunhems
2	Vlaspik	Mon-Seminis
3	Excursion	Mon-Seminis
4	EGP-427	EmeraldSeeds
5	EXP70-051	Bejo Seeds
6	Journey	Mon-Seminis
7	Nun-55504	BayerNunhems
8	Johnston	NCState Univ
9	Wealthy	HM-Clause
10	Treasure	HM-Clause
11	Feisty(9464)	HM-Clause

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	Nun-5539	BayerNunhems	4079	576	14	4	15	60	7	34
2	Vlaspik	Mon-Seminis	4021	571	17	4	20	52	7	35
3	EXP70-051	Bejo Seeds	3918	533	8	3	19	60	10	35
4	Excursion	Mon-Seminis	3851	538	15	6	19	52	8	35
5	Journey	Mon-Seminis	3788	526	17	4	20	55	5	33
6	EGP-427	EmeraldSeeds	3681	697	20	3	10	47	20	35
7	Nun-55504	BayerNunhems	3548	526	14	3	13	61	9	30
8	Wealthy	HM-Clause	3456	590	19	3	12	51	15	35
9	EXP09-2431	Bejo Seeds	3339	474	9	3	19	58	11	35
10	Feisty(9464)	HM-Clause	3337	487	13	3	17	57	10	35
11	Johnston	NCState Univ	3337	462	13	4	17	60	6	33
12	Expedition	Mon-Seminis	3314	442	18	6	28	44	4	35
13	Raleigh	NCState Univ	3311	498	10	4	15	54	17	35
14	PCX-112	Baker Seeds	3309	417	8	5	25	56	6	35
15	Vlasstar	Mon-Seminis	3275	437	11	7	24	49	11	33
16	Treasure	HM-Clause	3263	539	16	4	13	51	16	35
17	PCX-155	Baker Seeds	3187	423	17	6	24	49	4	35
18	Wainwright	BayerNunhems	3132	424	13	4	21	56	6	30
19	EXP08-7814	Bejo Seeds	3054	485	9	4	17	52	18	35
20	HSX-2015	Hort AgSeeds	2990	477	9	3	12	57	18	34
21	MacArthur	BayerNunhems	2967	401	10	5	23	50	12	24
22	Lafayette	BayerNunhems	2959	381	13	7	24	49	7	34
23	NC-Duplin	NCState Univ	2942	423	8	4	17	57	15	35
24	Calypso	NCState Univ	2834	462	11	5	17	45	23	35
25	EXP08-7851	Bejo Seeds	2798	403	12	4	17	55	12	35
26	HSX-6022	Hort AgSeeds	2718	390	8	5	17	57	13	25
27	CrossCountry	HM-Clause	2717	433	13	2	16	54	15	35
28	Nun-55505	BayerNunhems	2668	397	12	4	20	50	15	35
29	EGP-410	EmeraldSeeds	2660	433	17	3	17	49	15	35
30	NC-Davie	ZeraimGedera	2642	399	7	5	22	43	23	17
31	NC-Dawson	NCState Univ	2619	341	6	8	23	49	14	18
32	NC-Danbury	NCState Univ	2377	344	5	5	24	43	23	31
33	NC-Denton	NCState Univ	2078	260	8	7	23	53	8	14
34	Sumter	Clemson Univ	2025	305	7	5	22	41	24	35
35	Wis.SMR 18	Univ. Wis.	1657	321	10	3	12	43	33	33
CV (%)			15	21	23	34	29	10	44	7
Mean			3081	452	12	4	19	52	13	32
LSD (5%)			742	152	5	3	9	9	9	4

Correlation (Fruit value with fruit weight) = 0.84\*\*

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 <sup>z</sup> (8 harvests) for harvest:									
			1		1-2		1-3		1-4		1-5	
			\$/A	%	\$/A	%	\$/A	%	\$/A	%	\$/A	%
1	Nun-55504	BayerNunhems	1445	41	1649	47	2774	78	2961	84	3313	93
2	Nun-5539	BayerNunhems	1436	35	1648	41	2950	73	3289	81	3858	95
3	Vlaspik	Mon-Seminis	1361	34	1618	40	2719	67	3099	77	3717	92
4	EGP-427	EmeraldSeeds	1344	36	1618	44	2732	74	3067	83	3538	96
5	Excursion	Mon-Seminis	1172	30	1606	42	2613	68	3064	80	3627	94
6	Johnston	NCState Univ	1393	39	1533	43	2355	69	2583	76	3170	95
7	Journey	Mon-Seminis	1246	33	1520	40	2727	72	2997	79	3633	96
8	Treasure	HM-Clause	1135	35	1460	45	2363	72	2636	81	3082	94
9	EXP70-051	Bejo Seeds	1189	30	1427	36	2455	62	2740	70	3626	92
10	Wealthy	HM-Clause	1137	33	1383	40	2411	69	2783	80	3277	95
11	Raleigh	NCState Univ	1014	31	1348	41	2252	68	2545	77	3061	93
12	Feisty(9464)	HM-Clause	1069	32	1311	39	2330	69	2636	79	3157	94
13	HSX-2015	Hort AgSeeds	1084	36	1305	43	2144	71	2378	79	2839	95
14	EXP09-2431	Bejo Seeds	1149	34	1292	38	2338	69	2557	76	3087	92
15	Expedition	Mon-Seminis	1080	32	1282	38	2169	64	2524	75	3054	91
16	Wainwright	BayerNunhems	1017	31	1185	37	2129	66	2352	73	2890	91
17	PCX-155	Baker Seeds	961	30	1174	36	2144	67	2426	76	2912	91
18	NC-Duplin	NCState Univ	944	32	1170	40	1965	67	2271	77	2721	92
19	HSX-6022	Hort AgSeeds	925	33	1142	41	2053	75	2217	80	2540	93
20	PCX-112	Baker Seeds	932	28	1125	34	2125	64	2409	73	2988	90
21	EXP08-7814	Bejo Seeds	821	26	1077	34	1914	62	2190	71	2849	93
22	MacArthur	BayerNunhems	634	21	984	33	1870	63	2224	75	2736	92
23	Nun-55505	BayerNunhems	786	29	939	35	1617	60	1819	68	2408	90
24	Lafayette	BayerNunhems	584	19	879	30	1810	61	2094	71	2685	91
25	EXP08-7851	Bejo Seeds	714	24	860	30	1772	64	1962	70	2522	90
26	Calypso	NCState Univ	545	19	853	30	1659	59	1996	71	2605	92
27	EGP-410	EmeraldSeeds	635	24	835	31	1811	68	2025	76	2499	94
28	Vlasstar	Mon-Seminis	592	18	802	24	1790	54	2160	66	2963	90
29	CrossCountry	HM-Clause	592	21	764	27	1612	58	1834	66	2415	89
30	Wis.SMR 18	Univ. Wis.	315	20	578	36	945	58	1167	71	1464	89
31	NC-Danbury	NCState Univ	195	8	520	22	1138	48	1510	64	2093	88
32	NC-Davie	ZerainGedera	152	6	366	13	1131	42	1586	60	2259	85
33	NC-Denton	NCState Univ	112	6	306	15	918	45	1234	60	1890	91
34	Sumter	Clemson Univ	61	3	284	14	781	39	1170	58	1704	84
35	NC-Dawson	NCState Univ	93	3	254	9	1040	39	1425	54	2277	87
	CV (%)		35	24	29	18	22	11	19	8	16	3
	Mean		853	26	1089	34	1987	63	2284	73	2842	92
	LSD (5%)		481	10	510	10	705	11	722	9	737	5

Correlation (Fruit value with value in harvests 1 and 2) = 0.85\*\*

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	CrossCountry	HM-Clause	7.6	7.3	7.3	7.3	8.0
2	EXP70-051	Bejo Seeds	7.4	7.3	7.3	7.0	8.0
3	Vlasstar	Mon-Seminis	7.4	8.0	6.7	6.7	7.7
4	PCX-112	Baker Seeds	7.4	7.7	8.0	7.0	7.7
5	Nun-55505	BayerNunhems	7.4	7.3	7.7	7.7	7.3
6	NC-Danbury	NCState Univ	7.3	8.3	7.7	6.0	7.7
7	EXP09-2431	Bejo Seeds	7.3	7.0	7.7	7.3	7.7
8	EXP08-7851	Bejo Seeds	7.1	6.7	7.0	7.3	7.3
9	NC-Davie	ZeraimGedera	6.9	8.0	7.3	4.7	8.0
10	Johnston	NCState Univ	6.9	7.3	7.7	6.7	6.7
11	Lafayette	BayerNunhems	6.9	7.0	7.3	6.7	7.0
12	Excursion	Mon-Seminis	6.9	7.3	8.0	6.7	6.7
13	EGP-410	EmeraldSeeds	6.9	7.3	6.7	6.0	7.3
14	NC-Duplin	NCState Univ	6.8	7.7	7.0	4.7	8.0
15	EXP08-7814	Bejo Seeds	6.8	6.3	8.0	7.7	6.3
16	Sumter	Clemson Univ	6.8	8.0	4.7	6.7	5.7
17	EGP-427	EmeraldSeeds	6.8	7.7	6.3	5.0	7.7
18	Nun-5539	BayerNunhems	6.8	7.3	7.0	6.0	7.0
19	Raleigh	NCState Univ	6.7	7.7	6.7	6.0	6.3
20	Feisty(9464)	HM-Clause	6.7	7.0	8.0	6.7	6.3
21	Treasure	HM-Clause	6.7	6.7	6.7	6.3	7.0
22	Expedition	Mon-Seminis	6.7	6.7	7.3	6.7	6.7
23	Wainwright	BayerNunhems	6.6	6.7	7.0	6.0	7.0
24	Vlaspik	Mon-Seminis	6.6	6.3	6.3	7.0	6.3
25	Wealthy	HM-Clause	6.4	6.3	6.3	6.7	6.3
26	MacArthur	BayerNunhems	6.4	7.3	8.0	5.7	6.3
27	Journey	Mon-Seminis	6.4	7.0	7.7	6.0	6.3
28	PCX-155	Baker Seeds	6.4	6.3	8.0	7.0	6.0
29	NC-Dawson	NCState Univ	6.2	6.7	7.0	5.7	6.3
30	Nun-55504	BayerNunhems	6.1	7.0	7.0	5.0	6.3
31	NC-Denton	NCState Univ	5.8	6.7	7.3	5.0	5.7
32	Calypso	NCState Univ	5.8	6.3	5.0	5.3	5.7
33	HSX-2015	Hort AgSeeds	5.2	5.7	7.0	5.0	5.0
34	Wis.SMR 18	Univ. Wis.	5.0	7.0	3.7	3.7	4.3
35	HSX-6022	Hort AgSeeds	4.3	5.3	6.0	3.7	4.0
	CV (%)		8.5	9.9	10.7	18.9	10.6
	Mean		6.6	7.0	7.0	6.1	6.7
	LSD (5%)		0.9	1.1	1.2	1.9	1.1

<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) = 0.06<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	Nun-55505	BayerNunhems	19	3.6	K	G	K	T	K	G
2	EXP70-051	Bejo Seeds	19	3.4	K	G	K	G	T	T
3	NC-Danbury	NCState Univ	19	3.3	K	K	K	K	G	D
4	Johnston	NCState Univ	19	3.4	K	G	K	G	T	G
5	EGP-410	EmeraldSeeds	19	3.2	K	K	K	K	I	T
6	Raleigh	NCState Univ	19	3.5	K	K	T	G	G	G
7	EXP08-7814	Bejo Seeds	18	3.4	G	T	K	T	K	G
8	Sumter	Clemson Univ	18	3.2	K	W	K	K	K	W
9	Wainwright	BayerNunhems	18	3.6	K	K	G	G	T	T
10	Calypso	NCState Univ	18	3.2	W	W	K	K	D	T
11	EXP08-7851	Bejo Seeds	17	3.3	K	K	K	W	G	G
12	Expedition	Mon-Seminis	17	3.8	K	G	G	G	T	T
13	Wealthy	HM-Clause	17	3.3	K	K	D	T	K	T
14	NC-Davie	ZeraimGedera	17	3.2	K	K	K	K	K	K
15	NC-Dawson	NCState Univ	17	3.6	K	G	G	G	K	W
16	PCX-112	Baker Seeds	17	3.5	K	K	K	K	K	T
17	EXP09-2431	Bejo Seeds	17	3.3	G	G	K	T	K	T
18	NC-Duplin	NCState Univ	17	3.2	K	K	K	K	K	T
19	Nun-5539	BayerNunhems	17	3.3	K	G	G	G	K	T
20	PCX-155	Baker Seeds	17	3.9	G	G	G	T	T	T
21	CrossCountry	HM-Clause	16	3.4	K	T	K	T	K	T
22	Vlasstar	Mon-Seminis	16	3.2	K	K	K	K	K	K
23	Excursion	Mon-Seminis	16	3.7	K	K	G	G	G	T
24	Treasure	HM-Clause	16	3.5	K	K	K	G	M	T
25	Vlaspik	Mon-Seminis	16	3.6	K	K	G	G	G	T
26	MacArthur	BayerNunhems	16	3.6	K	K	K	O	K	G
27	Journey	Mon-Seminis	16	3.6	K	K	G	G	G	T
28	NC-Denton	NCState Univ	16	3.6	K	G	D	G	K	G
29	HSX-2015	Hort AgSeeds	16	2.6	H	H	H	T	M	M
30	Wis.SMR 18	Univ. Wis.	16	3.1	K	W	W	W	T	Y
31	Feisty(9464)	HM-Clause	16	3.6	K	T	K	G	K	G
32	EGP-427	EmeraldSeeds	15	3.2	K	K	K	K	T	T
33	Lafayette	BayerNunhems	15	3.5	K	K	G	T	G	T
34	Nun-55504	BayerNunhems	14	3.3	G	T	K	T	K	M
35	HSX-6022	Hort AgSeeds	11	2.5	H	H	A	A	A	H
CV (%)			10	4.7						
Mean			17	3.4						
LSD (5%)			3	0.3						

<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 - 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	EXP09-2431	Bejo Seeds	9	9	5
2	Wealthy	HM-Clause	9	8	7
3	EXP08-7814	Bejo Seeds	9	8	7
4	Vlaspik	Mon-Seminis	9	8	6
5	Wainwright	BayerNunhems	9	8	9
6	Journey	Mon-Seminis	9	8	6
7	Expedition	Mon-Seminis	9	7	7
8	PCX-155	Baker Seeds	9	7	6
9	Vlasstar	Mon-Seminis	9	7	5
10	Lafayette	BayerNunhems	9	6	8
11	EGP-410	EmeraldSeeds	9	8	9
12	MacArthur	BayerNunhems	9	6	9
13	EXP08-7851	Bejo Seeds	8	8	6
14	Nun-5539	BayerNunhems	8	8	5
15	EGP-427	EmeraldSeeds	8	8	7
16	Treasure	HM-Clause	8	8	7
17	EXP70-051	Bejo Seeds	8	7	7
18	HSX-6022	Hort AgSeeds	8	6	8
19	HSX-2015	Hort AgSeeds	8	8	8
20	Johnston	NCState Univ	7	7	7
21	Nun-55504	BayerNunhems	7	8	9
22	CrossCountry	HM-Clause	7	7	8
23	Feisty(9464)	HM-Clause	6	8	9
24	Nun-55505	BayerNunhems	6	8	8
25	Excursion	Mon-Seminis	6	8	7
26	PCX-112	Baker Seeds	5	8	8
27	Wis.SMR 18	Univ. Wis.	5	8	4
28	NC-Dawson	NCState Univ	4	6	7
29	Raleigh	NCState Univ	4	8	8
30	Calypso	NCState Univ	3	9	6
31	NC-Danbury	NCState Univ	3	8	9
32	NC-Duplin	NCState Univ	3	8	7
33	NC-Davie	ZeraimGedera	3	6	8
34	NC-Denton	NCState Univ	2	5	8
35	Sumter	Clemson Univ	2	7	8
	CV (%)		20	14	14
	Mean		7	8	7
	LSD (5%)		2	2	2

<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 w/ gynoecious rating) = 0.36\*\*; (Yield w/ vine size) = 0.30\*\*

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

Rank	Cultivar or line	Seed source	Downy mildew
1	CrossCountry	HM-Clause	3.7
2	Wealthy	HM-Clause	4.0
3	Vlasstar	Mon-Seminis	4.3
4	Lafayette	BayerNunhems	4.3
5	EGP-410	EmeraldSeeds	4.3
6	Johnston	NCState Univ	4.3
7	Feisty(9464)	HM-Clause	4.3
8	PCX-112	Baker Seeds	4.3
9	PCX-155	Baker Seeds	4.7
10	EXP08-7851	Bejo Seeds	4.7
11	Nun-55505	BayerNunhems	4.7
12	NC-Denton	NCState Univ	4.7
13	EXP09-2431	Bejo Seeds	5.0
14	EXP08-7814	Bejo Seeds	5.0
15	Vlaspik	Mon-Seminis	5.0
16	Expedition	Mon-Seminis	5.0
17	Nun-5539	BayerNunhems	5.0
18	HSX-2015	Hort AgSeeds	5.0
19	Excursion	Mon-Seminis	5.0
20	NC-Danbury	NCState Univ	5.0
21	Sumter	Clemson Univ	5.0
22	Wainwright	BayerNunhems	5.3
23	EGP-427	EmeraldSeeds	5.3
24	Treasure	HM-Clause	5.3
25	Nun-55504	BayerNunhems	5.3
26	Raleigh	NCState Univ	5.3
27	NC-Duplin	NCState Univ	5.3
28	NC-Davie	ZeraimGedera	5.3
29	Journey	Mon-Seminis	5.7
30	MacArthur	BayerNunhems	5.7
31	HSX-6022	Hort AgSeeds	5.7
32	NC-Dawson	NCState Univ	5.7
33	Calypso	NCState Univ	5.7
34	EXP70-051	Bejo Seeds	6.0
35	Wis.SMR 18	Univ. Wis.	7.0
	CV (%)		18.8
	Mean		5.0
	LSD (5%)		1.5

<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) =-0.02\*\*



Table 12. 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	Nun-5539	BayerNunhems	15.0	11.6	13.0	13.2
2	Vlaspik	Mon-Seminis	14.7	11.4	14.7	14.3
3	Excursion	Mon-Seminis	14.6	11.3	13.2	14.3
4	EGP-427	EmeraldSeeds	14.2	11.4	14.1	14.5
5	EXP70-051	Bejo Seeds	14.1	11.0	12.4	13.8
6	Journey	Mon-Seminis	14.0	10.8	16.9	17.2
7	Nun-55504	BayerNunhems	13.9	10.7	17.5	17.5
8	Johnston	NCState Univ	13.7	10.5	13.9	13.0
9	Wealthy	HM-Clause	13.2	10.6	15.5	13.7
10	Treasure	HM-Clause	13.0	10.3	16.7	16.0
11	Feisty(9464)	HM-Clause	12.9	10.2	16.1	16.0
12	EXP09-2431	Bejo Seeds	12.8	10.2	13.6	14.7
13	Raleigh	NCState Univ	12.8	10.1	16.4	14.8
14	Expedition	Mon-Seminis	12.6	9.9	17.2	16.8
15	PCX-112	Baker Seeds	12.4	9.9	12.1	14.5
16	PCX-155	Baker Seeds	12.1	9.6	18.7	17.8
17	Wainwright	BayerNunhems	11.9	9.4	18.9	18.3
18	HSX-2015	Hort AgSeeds	11.8	9.3	23.5	20.4
19	NC-Duplin	NCState Univ	11.6	9.3	17.1	17.6
20	EXP08-7814	Bejo Seeds	11.6	9.5	18.3	17.0
21	Vlasstar	Mon-Seminis	11.3	9.4	14.1	16.8
22	MacArthur	BayerNunhems	11.0	8.9	20.0	20.8
23	Lafayette	BayerNunhems	10.9	8.9	17.4	19.3
24	Nun-55505	BayerNunhems	10.8	8.8	15.7	15.8
25	EXP08-7851	Bejo Seeds	10.6	8.7	17.5	18.1
26	CrossCountry	HM-Clause	10.4	8.9	14.3	15.9
27	HSX-6022	Hort AgSeeds	10.4	8.2	27.8	26.1
28	EGP-410	EmeraldSeeds	10.3	8.6	17.8	16.9
29	Calypso	NCState Univ	10.1	8.4	24.1	21.9
30	NC-Danbury	NCState Univ	8.9	7.7	18.1	19.3
31	NC-Davie	ZeraimGedera	8.6	7.7	19.7	21.3
32	NC-Dawson	NCState Univ	8.0	7.1	25.6	25.8
33	Sumter	Clemson Univ	7.4	6.5	21.6	22.1
34	NC-Denton	NCState Univ	7.4	6.4	25.9	26.0
35	Wis.SMR 18	Univ. Wis.	6.9	5.9	30.9	29.1
	CV (%)		14.2	12.0	19.8	17.2
	Mean		11.6	9.3	18.0	18.0
	LSD (5%)		2.7	1.8	5.8	5.1

<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 (Yield with SWI1) = 0.95\*\* Correlation (Yield with ARI1) = -0.69\*\*

# Slicing Cucumbers

## Preliminary (Stage 1) Slicing Cucumber Trial 2011

The stage 1 slicer trial was not run this year.

## Observational (Stage 2) Slicing Cucumber Trial 2011

The stage 2 slicer trial was not run this year.

## Clinton (Stage 3) Slicing Cucumber Trial 2011

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 16 May, and harvested 6 times (Mondays and Thursdays) between 13 and 30 June.

### Data Collection

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

### Results

The following cultigens performed well, and could be advanced to the next stage:

1	G83xNC-59	NC StateUniv
2	G83xNC-58	NC StateUniv
3	MVS-Slicer-3	Mon-Seminis
4	Dasher II	Mon-Seminis
5	EMS-177	EmeraldSeeds
6	MVS-Slicer-2	Mon-Seminis
7	Intimidator	Mon-Seminis
8	Stonewall	Clause-HM

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

Rank	Cultivar or line	Seed source	Yield(cwt/A)		Percent fancy +No.1	Percent culls	Plants per A (x1000)
			Fancy +No.1	Market- able			
1	Dasher II	Mon-Seminis	695	992	63	8	61
2	G83xNC-59	NC StateUniv	689	1087	58	9	57
3	G57xNC-63	NC StateUniv	668	1098	54	11	59
4	Poinsett 76	Cornell Univ	656	979	60	8	61
5	Thunder	Mon-Seminis	581	887	61	6	37
6	G57xNC-62	NC StateUniv	579	870	57	15	61
7	G57xNC-58	NC StateUniv	577	828	59	15	59
8	Lancer-152	EmeraldSeeds	570	857	60	10	61
9	EMS-177	EmeraldSeeds	562	869	58	10	61
10	Stonewall	Clause-HM	545	946	53	9	61
11	G83xNC-58	NC StateUniv	535	973	47	15	61
12	MVS-Slicer-1	Mon-Seminis	531	771	65	6	61
13	MVS-Slicer-2	Mon-Seminis	514	852	53	12	61
14	Intimidator	Mon-Seminis	508	842	51	16	61
15	General Lee	Clause-HM	506	868	55	5	61
16	NC-Sunshine	NC StateUniv	488	863	47	15	58
17	EMS-173	EmeraldSeeds	487	831	52	11	61
18	EMS-172	EmeraldSeeds	476	838	50	13	61
19	EXP-2856	Bejo Seeds	474	806	49	17	61
20	NC-Stratford	ZeraimGedera	446	810	45	18	59
21	G83xNC-63	NC StateUniv	427	820	42	18	61
22	MVS-Slicer-3	Mon-Seminis	409	867	36	24	61
23	Cherokee 87	Check	383	663	54	10	60
24	Ashley	Check	317	544	56	4	61
25	EMS-148	EmeraldSeeds	242	388	58	6	44
26	Marketmore76	Check	183	238	82	1	35
	CV (%)		30	25	13	35	11
	Mean		502	823	55	11	58
	LSD (5%)		250	336	12	6	10

Correlation (Marketable yield with % culls) = 0.09<sup>ns</sup>

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

Rank	Cultivar or line	Seed source	Cumulative fruit weight and % of total weight (6 harvests) for harvest:									
			1		1-2		1-3		1-4		1-5	
			Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%
1	MVS-Slicer-3	Mon-Seminis	320	39	441	53	540	64	680	79	763	88
2	G57xNC-63	NC StateUniv	333	29	420	38	533	48	793	72	926	84
3	G83xNC-58	NC StateUniv	155	16	362	36	533	55	658	68	790	81
4	G83xNC-59	NC StateUniv	193	17	344	30	545	49	724	66	884	81
5	G57xNC-62	NC StateUniv	211	24	329	37	425	48	613	70	753	87
6	G57xNC-58	NC StateUniv	248	30	321	37	468	55	567	68	698	85
7	EMS-177	EmeraldSeeds	151	17	313	36	587	68	710	82	802	93
8	MVS-Slicer-2	Mon-Seminis	188	22	290	34	539	64	663	78	753	89
9	Intimidator	Mon-Seminis	149	18	277	33	436	52	608	72	700	83
10	EMS-172	EmeraldSeeds	76	9	258	30	574	69	650	77	714	85
11	G83xNC-63	NC StateUniv	61	8	217	28	410	51	561	69	687	84
12	Dasher II	Mon-Seminis	102	11	210	22	493	51	650	66	796	80
13	NC-Stratford	ZeraimGedera	55	7	203	24	370	45	510	64	655	81
14	Stonewall	Clause-HM	20	2	197	21	489	51	575	61	730	79
15	NC-Sunshine	NC StateUniv	39	4	165	18	335	38	468	54	621	70
16	EMS-173	EmeraldSeeds	53	6	164	19	409	49	613	74	730	88
17	EXP-2856	Bejo Seeds	55	6	160	18	367	45	639	79	712	87
18	General Lee	Clause-HM	32	4	143	16	361	41	500	58	643	73
19	Poinsett 76	Cornell Univ	35	4	133	13	297	31	540	56	766	77
20	MVS-Slicer-1	Mon-Seminis	52	8	127	18	436	57	547	72	675	88
21	Lancer-152	EmeraldSeeds	0	0	90	11	319	39	459	54	668	78
22	Thunder	Mon-Seminis	0	0	80	8	169	19	326	36	586	67
23	Cherokee 87	Check	17	3	66	10	198	30	401	63	525	80
24	Ashley	Check	0	0	12	2	74	14	230	42	414	76
25	EMS-148	EmeraldSeeds	1	0	3	1	26	7	148	37	258	65
26	Marketmore76	Check	0	0	0	0	5	1	14	3	67	12
CV (%)			70	60	53	41	29	16	25	10	27	8
Mean			98	11	205	23	382	44	533	62	666	78
LSD (5%)			112	11	178	15	183	12	216	10	291	10

Correlation (Marketable yield with yield in harvests 1-2) = 0.62\*\*

Correlation (Marketable yield with % of yield in harvests 1-2) = 0.43\*\*

Table 15. Stage 3 spring slicer trial (Clinton) - 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	Marketmore76	Check	7.7	8	7	8	7
2	G83xNC-63	NC StateUniv	7.6	8	8	7	8
3	NC-Stratford	ZeraimGedera	7.6	8	8	7	8
4	MVS-Slicer-1	Mon-Seminis	7.4	8	8	7	7
5	Stonewall	Clause-HM	7.3	8	8	7	7
6	Dasher II	Mon-Seminis	7.3	7	8	7	7
7	Lancer-152	EmeraldSeeds	7.2	8	8	6	8
8	EXP-2856	Bejo Seeds	7.2	7	7	7	7
9	EMS-148	EmeraldSeeds	7.1	7	7	7	7
10	NC-Sunshine	NC StateUniv	7.1	7	8	7	7
11	EMS-173	EmeraldSeeds	7.1	7	8	7	7
12	MVS-Slicer-2	Mon-Seminis	7.1	7	7	7	7
13	General Lee	Clause-HM	7.0	7	7	7	7
14	G83xNC-58	NC StateUniv	6.9	7	8	6	8
15	Intimidator	Mon-Seminis	6.9	7	8	7	7
16	MVS-Slicer-3	Mon-Seminis	6.8	7	8	6	7
17	G83xNC-59	NC StateUniv	6.8	7	8	6	7
18	EMS-177	EmeraldSeeds	6.7	7	9	7	6
19	Poinsett 76	Cornell Univ	6.6	7	7	6	7
20	EMS-172	EmeraldSeeds	6.4	7	8	6	6
21	Thunder	Mon-Seminis	6.3	7	7	6	7
22	Cherokee 87	Check	5.8	6	6	5	6
23	Ashley	Check	5.3	5	6	6	5
24	G57xNC-63	NC StateUniv	5.0	4	5	6	4
25	G57xNC-62	NC StateUniv	4.9	5	5	5	4
26	G57xNC-58	NC StateUniv	4.6	5	5	5	4
	CV (%)		9.3	13	11	13	13
	Mean		6.7	7	7	7	7
	LSD (5%)		1.0	1	1	1	1

<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) = -0.03<sup>ns</sup>

Table 16. Stage 3 spring slicer trial (Clinton) - fruit dimensions and comments (cultigens ranked by average quality rating).<sup>z</sup>

Rank	Cultivar or line	Seed source	Length (inch)	Diameter (inch)	Wt. (lb.)	Defect 1°			Defect 2°		
						2	4	6	2	4	6
1	Marketmore76	Check	8.5	2.0	0.76	K	K	K	I	I	K
2	G83xNC-63	NC StateUniv	8.3	2.1	0.73	H	K	K	I	M	D
3	NC-Stratford	ZerainGedera	8.4	2.2	0.84	K	K	K	K	D	J
4	MVS-Slicer-1	Mon-Seminis	7.8	2.1	0.82	K	K	K	T	T	K
5	Stonewall	Clause-HM	8.9	2.1	0.91	K	M	K	T	O	T
6	Dasher II	Mon-Seminis	7.4	2.1	0.81	K	K	H	H	T	K
7	Lancer-152	EmeraldSeeds	8.7	2.0	0.83	K	K	K	G	T	T
8	EXP-2856	Bejo Seeds	9.0	2.0	0.86	K	D	K	G	M	Y
9	EMS-148	EmeraldSeeds	9.0	2.1	0.99	K	K	K	G	G	T
10	NC-Sunshine	NC StateUniv	8.7	2.1	0.86	K	K	K	K	G	K
11	EMS-173	EmeraldSeeds	8.5	2.0	0.85	K	K	K	T	T	G
12	MVS-Slicer-2	Mon-Seminis	8.0	2.1	0.81	K	H	K	T	T	M
13	General Lee	Clause-HM	7.9	2.1	0.76	K	K	K	H	T	T
14	G83xNC-58	NC StateUniv	8.5	2.2	0.84	K	K	K	K	H	T
15	Intimidator	Mon-Seminis	8.6	2.1	0.91	K	H	K	K	T	T
16	MVS-Slicer-3	Mon-Seminis	9.4	2.2	0.99	K	K	K	T	G	T
17	G83xNC-59	NC StateUniv	7.9	2.2	0.79	K	K	K	M	G	K
18	EMS-177	EmeraldSeeds	8.4	2.1	0.86	K	K	D	T	H	K
19	Poinsett 76	Cornell Univ	7.5	2.1	0.71	K	K	H	H	H	K
20	EMS-172	EmeraldSeeds	8.1	2.0	0.79	K	M	K	H	T	T
21	Thunder	Mon-Seminis	8.1	2.2	0.93	H	K	K	M	H	D
22	Cherokee 87	Check	7.7	2.2	0.76	H	K	M	M	T	H
23	Ashley	Check	7.9	2.0	0.69	H	M	M	T	A	A
24	G57xNC-63	NC StateUniv	7.7	2.2	0.82	H	H	M	M	M	H
25	G57xNC-62	NC StateUniv	7.0	2.2	0.80	H	H	M	M	M	H
26	G57xNC-58	NC StateUniv	7.0	2.2	0.72	H	H	M	M	M	H
CV (%)			5.7	5.1	11.31						
Mean			8.2	2.1	0.82						
LSD (5%)			0.8	0.2	0.15						

<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 17. Stage 3 spring slicer trial (Clinton) - 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	Mon-Seminis	9	277	33	9	7
2	EXP-2856	Bejo Seeds	9	160	18	9	7
3	MVS-Slicer-2	Mon-Seminis	9	290	34	8	9
4	MVS-Slicer-3	Mon-Seminis	9	441	53	9	7
5	EMS-173	EmeraldSeeds	9	164	19	8	8
6	EMS-172	EmeraldSeeds	8	258	30	9	9
7	General Lee	Clause-HM	8	143	16	8	8
8	Dasher II	Mon-Seminis	8	210	22	9	7
9	Stonewall	Clause-HM	8	197	21	9	8
10	EMS-177	EmeraldSeeds	7	313	36	9	9
11	MVS-Slicer-1	Mon-Seminis	7	127	18	8	9
12	Lancer-152	EmeraldSeeds	6	90	11	9	7
13	Cherokee 87	Check	6	66	10	7	8
14	Thunder	Mon-Seminis	5	80	8	7	7
15	G83xNC-58	NC StateUniv	4	362	36	9	6
16	NC-Stratford	ZeraimGedera	4	203	24	7	7
17	G83xNC-59	NC StateUniv	4	344	30	9	7
18	G57xNC-63	NC StateUniv	4	420	38	9	8
19	G57xNC-62	NC StateUniv	4	329	37	8	7
20	NC-Sunshine	NC StateUniv	4	165	18	7	7
21	G57xNC-58	NC StateUniv	3	321	37	9	7
22	G83xNC-63	NC StateUniv	3	217	28	8	6
23	Poinsett 76	Cornell Univ	3	133	13	9	7
24	EMS-148	EmeraldSeeds	2	3	1	8	7
25	Marketmore76	Check	2	0	0	4	6
26	Ashley	Check	2	12	2	7	6
	CV (%)		20	53	41	9	10
	Mean		6	205	23	8	7
	LSD (5%)		2	178	15	1	1

<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) = 0.29\*

Table 18. Stage 3 spring slicer trial (Clinton) - disease ratings (cultigens ranked by average disease resistance).<sup>z</sup>

Rank	Cultivar or line	Seed source	Downy mildew
1	NC-Stratford	ZeraimGedera	2.3
2	NC-Sunshine	NC StateUniv	2.3
3	G83xNC-63	NC StateUniv	2.3
4	General Lee	Clause-HM	2.7
5	EMS-172	EmeraldSeeds	3.0
6	EMS-177	EmeraldSeeds	3.0
7	G83xNC-58	NC StateUniv	3.0
8	G57xNC-62	NC StateUniv	3.0
9	Intimidator	Mon-Seminis	3.3
10	MVS-Slicer-2	Mon-Seminis	3.3
11	Stonewall	Clause-HM	3.3
12	G83xNC-59	NC StateUniv	3.3
13	G57xNC-63	NC StateUniv	3.3
14	MVS-Slicer-3	Mon-Seminis	3.7
15	Dasher II	Mon-Seminis	3.7
16	MVS-Slicer-1	Mon-Seminis	3.7
17	Lancer-152	EmeraldSeeds	3.7
18	Poinsett 76	Cornell Univ	3.7
19	Cherokee 87	Check	4.0
20	Thunder	Mon-Seminis	4.0
21	G57xNC-58	NC StateUniv	4.0
22	Ashley	Check	4.0
23	EXP-2856	Bejo Seeds	4.3
24	EMS-173	EmeraldSeeds	4.3
25	EMS-148	EmeraldSeeds	5.7
26	Marketmore76	Check	6.3
	CV (%)		32.9
	Mean		3.6
	LSD (5%)		1.9

<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 disease rating) = -0.40\*\*



Table 19. Stage 3 spring slicer trial (Clinton) - 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	G57xNC-63	NC StateUniv	19.6	15.1	14.2	11.9
2	G83xNC-59	NC StateUniv	19.3	15.3	10.5	9.8
3	G83xNC-58	NC StateUniv	17.6	13.7	11.3	10.4
4	MVS-Slicer-3	Mon-Seminis	17.1	12.9	12.3	11.4
5	Dasher II	Mon-Seminis	17.1	14.1	10.6	11.3
6	EMS-177	EmeraldSeeds	16.9	13.4	12.1	11.3
7	G57xNC-62	NC StateUniv	16.7	13.0	16.3	14.2
8	G57xNC-58	NC StateUniv	16.2	12.7	18.4	16.3
9	MVS-Slicer-2	Mon-Seminis	15.9	12.7	10.9	10.7
10	Intimidator	Mon-Seminis	15.6	12.4	12.4	12.0
11	Poinsett 76	Cornell Univ	15.1	12.9	14.8	14.8
12	Stonewall	Clause-HM	15.1	12.5	10.9	11.2
13	EMS-172	EmeraldSeeds	14.9	11.9	13.8	12.6
14	G83xNC-63	NC StateUniv	14.0	11.4	9.8	10.1
15	NC-Stratford	ZeraimGedera	14.0	11.4	10.4	10.8
16	NC-Sunshine	NC StateUniv	13.8	11.5	11.4	11.5
17	General Lee	Clause-HM	13.6	11.4	11.9	11.9
18	EMS-173	EmeraldSeeds	13.4	11.2	14.2	14.7
19	Lancer-152	EmeraldSeeds	13.4	11.6	12.6	13.6
20	MVS-Slicer-1	Mon-Seminis	13.4	11.4	11.2	12.6
21	EXP-2856	Bejo Seeds	13.2	11.0	13.3	14.1
22	Thunder	Mon-Seminis	13.1	11.3	14.4	14.8
23	Cherokee 87	Check	9.9	8.6	18.9	18.8
24	Ashley	Check	7.8	7.0	21.1	21.2
25	EMS-148	EmeraldSeeds	6.7	6.1	17.7	19.9
26	Marketmore76	Check	5.7	5.2	15.7	18.9
	CV (%)		24.7	22.1	21.5	22.4
	Mean		14.2	11.6	13.5	13.5
	LSD (5%)		5.8	4.2	4.8	5.0

<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) = 0.92\*\*

Correlation (Marketable yield with ARI1) = -0.55\*\*