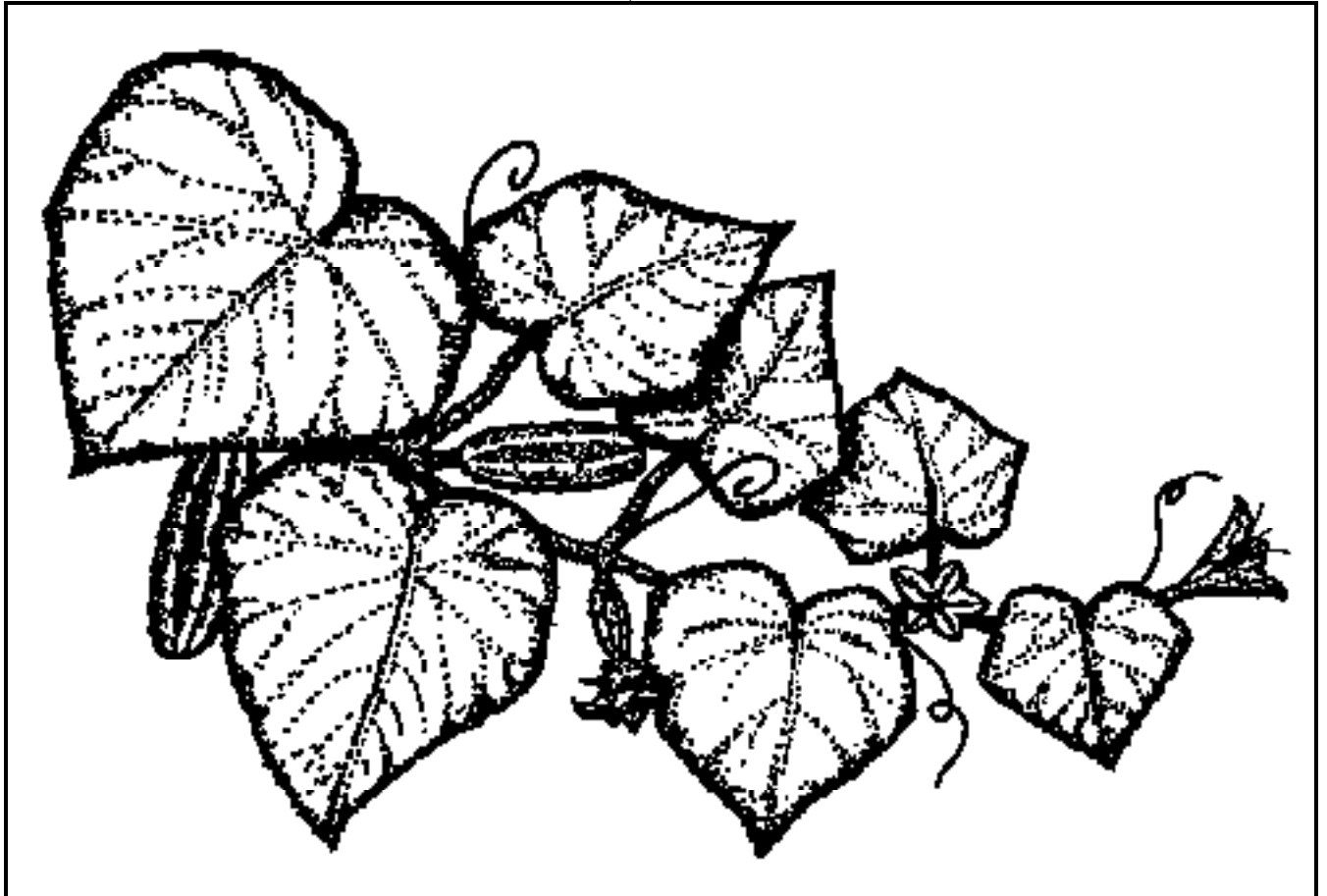


\$5.00

# NC State Cucumber Trials 2007



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The authors gratefully acknowledge the assistance of Robbie Brogden and the personnel at the Horticultural Crops Research Station, Clinton, NC for help in planting, maintaining, and harvesting the trials.

### About This Report

The data contained in this publication are made available to interested persons so that they will be informed as to the nature and scope of our cucumber breeding program. Since the results of the trials are based on one year's data, they should be interpreted cautiously. Genotype x environment interactions make it likely that the performance of any given cultigen (cultivar or breeding line) will be significantly different in other trials. Often, cultigens that perform well for yield, earliness, fruit quality, or disease resistance in one trial will perform significantly worse in other trials.

Other factors, known only to the researchers, may complicate the interpretation of the results, making it difficult for others to interpret differences from one year to the next. For example, the effect of seed lot, pollenizer, harvest labor, irrigation, fertilizer, pollinating insects and weather patterns may cause some test plots in the field to receive better or worse treatment than average. Therefore, we urge caution in interpreting these data. Conclusions drawn by the reader will be more accurate if they are of a general nature. For example, note which cultigens performed in the top third for yield, rather than which one was at the very top.

### Pricing schemes

Value of production figures were obtained by assigning the following prices for the marketable grades:

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

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

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

### Progression of breeding lines through trials:

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

The cost of planning these trials, doing the field work, running the data analysis, and summarizing the results for this report was approximately \$48,000 for the brinestock, pickling and slicing cucumber trials. Printing and binding charges were approximately \$3.00 per report.

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## Contents

Trial	Page
<b>Pickling Cucumber Trials</b>	
Brinestock Evaluation.....	4
Stage 1 Pickling Cucumber Trial (Preliminary).....	10
Stage 2 Pickling Cucumber Trial (Observational).....	10
Stage 3 Pickling Cucumber Trial (Replicated Spring).....	10
Stage 4 Pickling Cucumber Trial (Replicated Summer).....	19
<b>Slicing Cucumber Trials</b>	
Stage 1 Slicing Cucumber Trial (Preliminary).....	29
Stage 2 Slicing Cucumber Trial (Observational).....	29
Stage 3 Slicing Cucumber Trial (Replicated Spring).....	29
Stage 4 Slicing Cucumber Trial (Replicated Summer).....	37

# Pickling Cucumbers

## Brinestock Evaluation

### Spring (Stage 3) Pickle Trial

Todd C. Wehner and Tammy L. Ellington<sup>2</sup>

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#### Introduction

Cucumbers from harvests 3, 5 and 6 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: Jimmy Davis, Henry Woods, Bob Quinn, and Nick Flores (Mt. Olive), Eddie Quill and Chris Whitley (Bay Valley), John Cates (Addis Cates Co.), Steve Apol (Toisnot), Dan Bader (Carolina's Best), Thomas Joyner (Nash Produce), and Chris Ware (Harris Moran).

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

#### Results

The cultigens are presented in order by decreasing fruit quality in Table 1, and are ranked for resistance to bloaters and defects in Tables 2 and 3, respectively. Fruit texture and firmness rankings are in Table 4. The average quality ratings assigned by each judge in the test are presented in Table 5, showing how lenient each judge was relative to the others. 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-Danbury, NC-Lexington, NC-Longhurst, Atlantis, Cates, NC-Leland, Calypso, Johnston, and Pershing.
- Most cultigens were bloater resistant; several were susceptible: NC-Dixon.
- The firmest cultigens were NC-Danbury, Exp06-3566, Sumter, Exp06-3565, Atlantis, and HS-500.
- 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 Woods 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>2</sup> Thanks to Mt. Olive Pickle Co., Mt. Olive, N.C. for assistance in brining the cucumbers, and for providing the facilities for evaluating the cultigens tested. Thanks also to the personnel at the Horticultural Crops Research Station, Clinton, N.C. for help in running the field trials.

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

Rank	Cultivar or line	Seed source	Average quality	Shape	Extrnal color	Text- ure	Seed cell	Uniform- ity
1	NC-Danbury	NCStateUniv	6.3	6.2	6.0	6.2	6.4	6.6
2	NC-Lexington2	NCStateUniv	5.8	6.1	6.1	5.4	5.3	6.2
3	NC-Longhurst	NCStateUniv	5.7	5.9	6.1	5.1	5.2	6.3
4	Atlantis	Bejo Seeds	5.6	4.8	5.8	5.6	5.6	6.2
5	Cates	Nunhems	5.6	5.1	5.5	5.7	5.5	6.1
6	NC-Leland(P)	NCStateUniv	5.6	5.6	5.2	5.5	5.6	6.0
7	Calypso	NCStateUniv	5.6	5.5	5.5	5.5	5.4	5.8
8	Johnston	NCStateUniv	5.5	5.2	5.7	5.5	5.6	5.7
9	Pershing	Nunhems	5.5	4.9	5.7	5.7	5.5	5.7
10	NC-Leland	NCStateUniv	5.5	5.7	5.6	5.1	5.1	6.0
11	Sumter	ClemsonUniv	5.5	5.0	5.2	5.5	5.8	5.8
12	Exp06-3558	Bejo Seeds	5.4	5.1	5.8	5.1	5.2	6.0
13	NC-Denton	NCStateUniv	5.4	4.8	5.5	5.5	5.4	5.9
14	Vlaspik	Seminis	5.4	5.2	5.5	5.3	5.2	5.9
15	NC-Longhurst(P)	NCStateUniv	5.4	5.4	5.1	5.4	5.1	6.0
16	Exp06-3565	Bejo Seeds	5.4	5.1	5.8	5.0	5.0	5.9
17	LB-17	Baker Seeds	5.4	4.5	5.2	5.5	5.7	5.8
18	HS-500	HortAg Seed	5.3	5.2	4.6	5.3	5.8	5.7
19	Starex	Baker Seeds	5.3	4.6	5.2	5.3	5.8	5.8
20	Exp06-3566	Bejo Seeds	5.3	5.0	5.8	5.1	4.8	5.9
21	NC-Davie	ZeraimGdera	5.3	5.0	5.5	5.2	5.0	5.8
22	Ballerina(P)	Nunhems	5.3	4.9	5.2	5.2	5.4	5.7
23	Feisty(9464)	HarrisMoran	5.3	5.1	5.7	4.9	5.0	5.7
24	Crispina	Nunhems	5.3	5.1	5.4	5.1	4.9	5.7
25	NC-Moriah	NCStateUniv	5.2	4.8	5.1	5.4	5.4	5.5
26	Crispina(P)	Nunhems	5.2	5.1	5.3	5.1	5.1	5.7
27	MacArthur	Nunhems	5.2	4.6	5.6	5.3	5.1	5.5
28	NC-Dawson	NCStateUniv	5.2	4.8	5.5	5.2	5.1	5.5
29	PX0496-4769	Seminis	5.2	4.9	5.6	5.1	5.2	5.4
30	NC-Dixon	NCStateUniv	5.2	4.9	5.3	4.7	5.2	5.9
31	Wainwright	Nunhems	5.2	4.5	5.5	5.2	5.2	5.6
32	NC-Duplin	NCStateUniv	5.2	4.9	5.2	4.9	5.1	5.8
33	Jackson(3540)	Nunhems	5.1	5.1	5.7	4.5	4.4	5.7
34	H-19	Univ. Ark.	5.1	5.5	5.2	4.6	4.7	5.3
35	Ballerina	Nunhems	5.1	4.6	5.2	4.8	4.8	5.9
36	HMX-5406	HarrisMoran	5.0	4.3	5.3	5.2	4.8	5.5
37	NC-Lexington(P)	NCStateUniv	5.0	4.6	4.6	5.1	5.2	5.4
38	Wis.SMR 18	Univ. Wis.	4.9	4.3	4.8	4.9	5.0	5.5
39	Raleigh	NCStateUniv	4.8	4.2	5.2	5.0	4.7	5.3
40	PX0496-4729	Seminis	4.8	4.4	5.5	4.6	4.2	5.4
41	Coolgreen	Check	4.5	4.1	4.8	4.1	3.8	5.5
42	NC-Merritt	NCStateUniv	4.2	3.0	4.6	4.0	3.6	5.6
	CV (%)		13	19	14	20	22	15
	Mean		5.3	4.9	5.4	5.2	5.1	5.8
	LSD (5%)		0.3	0.5	0.4	0.5	0.6	0.4

<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) = 0.60\*\*

Correlation (Texture with Seedcell) = 0.91\*\*

Table 2. Brinestock evaluation - percentage of fruit damaged by bloaters (cultigens are ranked by balloon bloater resistance).

Rank	Cultivar or line	Seed source	Total bloaters	Balloon	Lens	Honey- comb
1	NC-Lexington2	NCStateUniv	0	0	0	0
2	NC-Longhurst	NCStateUniv	0	0	0	0
3	Cates	Nunhems	0	0	0	0
4	NC-Leland(P)	NCStateUniv	0	0	0	0
5	NC-Leland	NCStateUniv	0	0	0	0
6	NC-Longhurst(P)	NCStateUniv	0	0	0	0
7	Crispina	Nunhems	0	0	0	0
8	NC-Dawson	NCStateUniv	0	0	0	0
9	NC-Lexington(P)	NCStateUniv	0	0	0	0
10	Coolgreen	Check	0	0	0	0
11	Starex	Baker Seeds	2	0	2	0
12	HS-500	HortAg Seed	1	0	1	0
13	Calypso	NCStateUniv	0	0	0	0
14	Crispina(P)	Nunhems	0	0	0	0
15	Sumter	ClemsonUniv	0	0	0	0
16	LB-17	Baker Seeds	0	0	0	0
17	Ballerina	Nunhems	0	0	0	0
18	NC-Merritt	NCStateUniv	0	0	0	0
19	Vlaspik	Seminis	1	0	1	0
20	H-19	Univ. Ark.	0	0	0	0
21	Pershing	Nunhems	0	0	0	0
22	Exp06-3565	Bejo Seeds	1	1	0	0
23	NC-Danbury	NCStateUniv	1	1	0	0
24	NC-Moriah	NCStateUniv	1	1	0	0
25	NC-Davie	ZeraimGdera	1	1	0	0
26	Feisty(9464)	HarrisMoran	1	1	0	0
27	Atlantis	Bejo Seeds	1	1	0	0
28	Johnston	NCStateUniv	1	1	0	0
29	MacArthur	Nunhems	1	1	0	0
30	HMX-5406	HarrisMoran	1	1	0	0
31	PX0496-4769	Seminis	2	1	1	0
32	Ballerina(P)	Nunhems	1	1	0	0
33	Exp06-3566	Bejo Seeds	1	1	0	0
34	NC-Denton	NCStateUniv	1	1	0	0
35	Raleigh	NCStateUniv	1	1	0	0
36	Jackson(3540)	Nunhems	2	2	0	0
37	Wis.SMR 18	Univ. Wis.	2	2	0	0
38	Exp06-3558	Bejo Seeds	2	2	0	0
39	Wainwright	Nunhems	2	2	0	0
40	PX0496-4729	Seminis	3	3	0	0
41	NC-Duplin	NCStateUniv	3	3	0	0
42	NC-Dixon	NCStateUniv	8	8	0	0
CV (%)			168	185	444	-
Mean			1	1	0	0
LSD (5%)			3	3	1	-

Table 3. Brinestock evaluation - percentage of fruit damaged by defects (cultigens are ranked by resistance to defects).

Rank	Cultivar or line	Seed source	Total defects	Placental hollows	Blossom- end defects	Soft centers
1	NC-Danbury	NCStateUniv	1	1	0	0
2	Starex	Baker Seeds	1	0	0	1
3	Wis.SMR 18	Univ. Wis.	1	0	1	0
4	NC-Leland(P)	NCStateUniv	1	0	0	1
5	NC-Leland	NCStateUniv	1	0	0	1
6	NC-Lexington(P)	NCStateUniv	1	0	0	1
7	HS-500	HortAg Seed	1	0	0	1
8	Cates	Nunhems	1	0	0	1
9	Crispina	Nunhems	1	0	0	1
10	Calypso	NCStateUniv	1	1	0	1
11	LB-17	Baker Seeds	1	1	0	0
12	NC-Moriah	NCStateUniv	1	1	0	1
13	Sumter	ClemsonUniv	2	1	1	0
14	Pershing	Nunhems	2	0	0	2
15	NC-Dawson	NCStateUniv	2	0	0	2
16	Exp06-3565	Bejo Seeds	2	0	0	2
17	Johnston	NCStateUniv	2	2	0	0
18	Wainwright	Nunhems	2	2	0	0
19	Ballerina	Nunhems	2	1	0	1
20	Vlaspik	Seminis	2	1	1	0
21	NC-Davie	ZeraimGdera	2	1	0	1
22	MacArthur	Nunhems	2	2	0	1
23	Jackson(3540)	Nunhems	2	0	0	2
24	Exp06-3558	Bejo Seeds	2	0	1	1
25	Feisty(9464)	HarrisMoran	3	1	0	2
26	Exp06-3566	Bejo Seeds	3	2	0	1
27	Crispina(P)	Nunhems	3	1	0	2
28	NC-Lexington2	NCStateUniv	3	0	1	3
29	Atlantis	Bejo Seeds	3	2	1	0
30	Ballerina(P)	Nunhems	3	1	1	1
31	PX0496-4729	Seminis	3	1	0	3
32	NC-Longhurst(P)	NCStateUniv	4	0	0	4
33	NC-Denton	NCStateUniv	4	2	1	1
34	Raleigh	NCStateUniv	4	3	0	1
35	PX0496-4769	Seminis	4	3	0	1
36	H-19	Univ. Ark.	5	3	0	2
37	HMX-5406	HarrisMoran	5	3	0	2
38	NC-Duplin	NCStateUniv	5	3	2	0
39	NC-Merritt	NCStateUniv	5	1	0	4
40	NC-Dixon	NCStateUniv	5	3	2	0
41	NC-Longhurst	NCStateUniv	7	0	0	7
42	Coolgreen	Check	7	0	0	7
CV (%)			114	-	109	174
Mean			3	0	0	1
LSD (5%)			5	2	1	4

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	NC-Danbury	NCStateUniv	21.9	6.2	1	1	1	1
2	Exp06-3566	Bejo Seeds	21.5	5.1	4	1	1	3
3	Sumter	ClemsonUniv	21.4	5.5	2	0	0	2
4	Exp06-3565	Bejo Seeds	21.3	5.0	3	1	1	2
5	Atlantis	Bejo Seeds	21.2	5.6	4	1	1	3
6	HS-500	HortAg Seed	21.2	5.3	2	1	0	1
7	Johnston	NCStateUniv	20.7	5.5	3	1	1	2
8	Vlaspik	Seminis	20.7	5.3	3	1	0	2
9	Exp06-3558	Bejo Seeds	20.6	5.1	4	2	2	2
10	LB-17	Baker Seeds	20.4	5.5	1	0	0	1
11	NC-Dixon	NCStateUniv	20.2	4.7	13	8	8	5
12	H-19	Univ. Ark.	20.2	4.6	5	0	0	5
13	HMX-5406	HarrisMoran	20.1	5.2	6	1	1	5
14	NC-Longhurst	NCStateUniv	20.0	5.1	7	0	0	7
15	Ballerina	Nunhems	19.9	4.8	2	0	0	2
16	NC-Lexington2	NCStateUniv	19.8	5.4	3	0	0	3
17	NC-Denton	NCStateUniv	19.8	5.5	5	1	1	4
18	Feisty(9464)	HarrisMoran	19.6	4.9	4	1	1	3
19	NC-Duplin	NCStateUniv	19.6	4.9	8	3	3	5
20	PX0496-4729	Seminis	19.2	4.6	6	3	3	3
21	Wis.SMR 18	Univ. Wis.	19.2	4.9	3	2	2	1
22	NC-Leland	NCStateUniv	18.9	5.1	1	0	0	1
23	NC-Leland(P)	NCStateUniv	18.9	5.5	1	0	0	1
24	MacArthur	Nunhems	18.9	5.3	3	1	1	2
25	Cates	Nunhems	18.8	5.7	1	0	0	1
26	Raleigh	NCStateUniv	18.8	5.0	5	1	1	4
27	Crispina(P)	Nunhems	18.8	5.1	3	0	0	3
28	PX0496-4769	Seminis	18.7	5.1	6	2	1	4
29	NC-Lexington(P)	NCStateUniv	18.7	5.1	1	0	0	1
30	NC-Merritt	NCStateUniv	18.7	4.0	5	0	0	5
31	Calypso	NCStateUniv	18.7	5.5	1	0	0	1
32	Crispina	Nunhems	18.5	5.1	1	0	0	1
33	Pershing	Nunhems	18.5	5.7	2	0	0	2
34	NC-Dawson	NCStateUniv	18.4	5.2	2	0	0	2
35	NC-Moriah	NCStateUniv	18.4	5.4	2	1	1	1
36	Wainwright	Nunhems	18.3	5.2	4	2	2	2
37	Starex	Baker Seeds	18.2	5.3	2	2	0	1
38	Ballerina(P)	Nunhems	18.1	5.2	5	1	1	3
39	NC-Longhurst(P)	NCStateUniv	17.6	5.4	4	0	0	4
40	NC-Davie	ZeraimGdera	17.1	5.2	3	1	1	2
41	Jackson(3540)	Nunhems	16.5	4.5	4	2	2	2
42	Coolgreen	Check	12.6	4.1	7	0	0	7
CV (%)			6	20	90	168	185	114
Mean			19.2	5.2	4	1	1	3
LSD (5%)				0.5	5	3	3	5

<sup>2</sup> Firmness determined by punch-testing (Magness-Taylor) 10 grade 2B fruits.  
Correlation of Texture with: Firmness = 0.12ns, Balloon = -0.20\*  
Correlation of Texture with: Honeycomb = ns, Soft centers = -0.59\*\*



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

Rank	Judge	Average quality	Shape	External color	Texture	Seed cell	Uniformity
1	Apol	6.9	6.5	7.1	7.1	6.8	7.1
2	Davis	6.7	6.5	6.6	6.9	6.8	6.6
3	Whitley	6.2	6.1	6.2	5.9	6.2	6.6
4	Quill	5.7	5.1	6.2	5.5	5.9	6.0
5	Joyner	5.3	5.6	5.4	5.0	4.7	5.5
6	Ware	5.1	3.9	5.5	5.3	5.2	5.6
7	Flores	4.9	4.5	4.8	4.6	4.9	5.7
8	Cates	4.8	4.5	4.8	4.7	4.8	5.1
9	Bader	4.6	4.7	4.9	4.5	4.0	4.9
10	Quinn	4.3	3.8	4.3	3.3	3.3	7.1
11	Woods	3.6	3.2	3.7	4.0	4.0	3.2

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

# Pickling Cucumbers

## Preliminary (Stage 1) Pickling Cucumber Trial 2007

The stage 1 pickle trial was not run this year.

## Observational (Stage 2) Pickling Cucumber Trial 2007

The stage 2 pickle trial was not run this year.

## Spring (Stage 3) Pickling Cucumber Trial 2007

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 26 April, and harvested 8 times (Mondays and Thursdays) between 14 June and 9 July.

### Data Collection

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

### Results

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

1	Feisty(9464)	HarrisMoran
2	Ballerina	Nunhems
3	Jackson(3540)	Nunhems
4	Cates	Nunhems
5	Johnston	NCStateUniv
6	Exp06-3558	Bejo Seeds
7	LB-17	Baker Seeds
8	Starex	Baker Seeds
9	Wainwright	Nunhems
10	MacArthur	Nunhems
11	HMX-5406	HarrisMoran
12	Exp06-3566	Bejo Seeds
13	Vlaspik	Seminis
14	PX0496-4729	Seminis
15	NC-Moriah	NCStateUniv
16	Pershing	Nunhems

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	Ballerina	Nunhems	2241	213	14	21	47	18	1	26
2	Jackson(3540)	Nunhems	2211	272	18	11	31	32	7	26
3	Feisty(9464)	HarrisMoran	2094	236	20	15	39	23	4	26
4	Cates	Nunhems	1982	235	21	14	34	26	5	18
5	Johnston	NCStateUniv	1966	211	18	16	40	23	3	24
6	Exp06-3566	Bejo Seeds	1936	227	20	13	36	28	4	26
7	NC-Longhurst	NCStateUniv	1904	177	13	24	45	16	2	21
8	Crispina	Nunhems	1899	187	15	20	45	17	2	25
9	Exp06-3558	Bejo Seeds	1893	227	18	12	36	27	8	26
10	Starex	Baker Seeds	1885	240	22	11	31	29	7	26
11	Wainwright	Nunhems	1829	200	18	16	40	24	2	25
12	NC-Lexington2	NCStateUniv	1826	175	13	20	47	18	2	26
13	NC-Moriah	NCStateUniv	1816	241	25	11	29	29	6	26
14	LB-17	Baker Seeds	1804	241	21	10	28	33	9	25
15	PX0496-4729	Seminis	1781	226	22	11	30	32	5	26
16	Pershing	Nunhems	1777	212	17	9	36	33	4	26
17	MacArthur	Nunhems	1755	210	24	13	35	25	3	26
18	Vlaspik	Seminis	1724	191	20	17	35	26	2	25
19	NC-Danbury	NCStateUniv	1719	199	11	12	35	31	11	19
20	NC-Dawson	NCStateUniv	1705	216	24	11	36	25	5	26
21	NC-Duplin	NCStateUniv	1695	201	16	11	36	30	6	24
22	Atlantis	Bejo Seeds	1675	225	20	9	28	33	9	24
23	NC-Denton	NCStateUniv	1664	198	22	12	37	26	3	26
24	HMX-5406	HarrisMoran	1625	220	23	12	28	27	10	25
25	PX0496-4769	Seminis	1619	218	25	9	28	33	5	25
26	H-19	Univ. Ark.	1582	149	8	18	46	27	1	26
27	HS-500	HortAg Seed	1577	192	23	14	33	25	6	26
28	NC-Davie	ZeraimGeder	1476	164	20	16	39	22	3	22
29	Raleigh	NCStateUniv	1461	192	25	10	34	26	6	24
30	NC-Leland	NCStateUniv	1448	126	10	26	49	15	0	13
31	Exp06-3565	Bejo Seeds	1401	184	24	8	31	30	7	25
32	NC-Longhurst(P)	NCStateUniv	1365	134	17	22	38	23	0	25
33	NC-Merritt	NCStateUniv	1312	190	38	11	29	20	2	26
34	NC-Dixon	NCStateUniv	1275	146	12	12	34	32	8	25
35	Sumter	ClemsonUniv	1235	166	27	12	32	21	8	26
36	Ballerina(P)	Nunhems	1165	129	20	13	41	24	1	26
37	Wis.SMR 18	Univ. Wis.	1159	176	18	8	24	31	18	25
38	Coolgreen	Check	1121	144	14	12	27	31	15	10
39	Calypso	NCStateUniv	1111	124	13	13	38	32	4	19
40	Crispina(P)	Nunhems	1081	125	23	11	42	21	2	26
41	NC-Lexington(P)	NCStateUniv	942	95	15	19	42	23	2	21
42	NC-Leland(P)	NCStateUniv	569	55	20	29	35	16	0	8
	CV (%)		21	22	21	22	14	24	56	12
	Mean		1603	188	19	14	36	26	5	24
	LSD (5%)		549	66	7	5	8	10	4	5

Correlation (Fruit value with fruit weight) = 0.90\*\*

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	Feisty(9464)	HarrisMoran	303	15	815	38	914	43	1128	53	1319	62
2	Ballerina	Nunhems	419	18	694	31	851	38	1215	54	1434	63
3	HMX-5406	HarrisMoran	375	24	667	42	777	48	991	61	1090	67
4	LB-17	Baker Seeds	433	24	654	36	834	46	1030	57	1201	66
5	Starex	Baker Seeds	365	19	628	33	780	41	995	53	1121	59
6	Jackson(3540)	Nunhems	296	13	612	28	789	35	1167	53	1370	62
7	Cates	Nunhems	267	13	562	29	706	36	939	48	1171	59
8	MacArthur	Nunhems	339	19	559	32	683	39	900	51	989	57
9	Atlantis	Bejo Seeds	222	15	552	34	651	40	928	56	1089	65
10	Exp06-3558	Bejo Seeds	278	15	537	29	660	35	871	47	1001	54
11	NC-Merritt	NCStateUniv	320	24	521	40	630	48	772	59	831	64
12	Wainwright	Nunhems	317	16	514	26	647	33	872	45	986	52
13	PX0496-4729	Seminis	383	22	512	30	615	35	736	43	914	53
14	Johnston	NCStateUniv	175	9	508	26	694	35	1057	54	1232	62
15	Vlaspik	Seminis	328	17	500	26	640	34	791	42	938	51
16	Raleigh	NCStateUniv	261	18	485	33	600	41	776	53	898	62
17	NC-Moriah	NCStateUniv	278	16	482	26	639	35	907	50	1020	56
18	NC-Duplin	NCStateUniv	242	14	478	29	621	37	857	51	1023	61
19	NC-Dawson	NCStateUniv	274	16	470	28	598	35	932	54	1123	66
20	Pershing	Nunhems	218	12	468	26	567	32	769	43	893	50
21	Crispina	Nunhems	285	14	458	24	638	33	868	45	1076	55
22	PX0496-4769	Seminis	302	19	454	28	584	36	737	45	846	52
23	Exp06-3566	Bejo Seeds	168	10	450	25	571	31	901	48	1039	55
24	Exp06-3565	Bejo Seeds	225	16	414	29	502	35	704	47	829	56
25	Ballerina(P)	Nunhems	297	18	409	26	472	30	694	46	822	60
26	NC-Denton	NCStateUniv	177	11	393	24	500	30	765	46	962	58
27	Crispina(P)	Nunhems	304	23	393	30	473	36	629	49	702	55
28	HS-500	HortAg Seed	79	5	351	22	467	29	679	43	851	54
29	NC-Davie	ZeraimGeder	181	12	298	20	372	25	582	38	774	52
30	Sumter	ClemsonUniv	74	6	290	24	393	33	654	54	789	65
31	NC-Danbury	NCStateUniv	101	6	251	14	461	26	745	43	944	55
32	Wis.SMR 18	Univ. Wis.	82	7	244	20	306	25	464	39	587	49
33	NC-Dixon	NCStateUniv	81	6	233	17	329	25	562	43	728	56
34	Coolgreen	Check	63	6	194	18	246	22	513	46	686	61
35	NC-Lexington2	NCStateUniv	8	1	166	10	385	22	697	39	1023	56
36	Calypso	NCStateUniv	4	0	41	3	119	9	267	19	382	29
37	NC-Longhurst(P)	NCStateUniv	13	1	32	2	137	10	379	28	591	44
38	NC-Longhurst	NCStateUniv	0	0	25	1	182	9	558	29	802	42
39	H-19	Univ. Ark.	0	0	3	0	15	1	101	7	456	29
40	NC-Lexington(P)	NCStateUniv	2	0	2	0	10	1	146	15	265	28
41	NC-Leland	NCStateUniv	0	0	0	0	33	2	282	19	463	32
42	NC-Leland(P)	NCStateUniv	0	0	0	0	23	3	147	19	188	26
	CV (%)		52	49	38	34	36	30	32	25	29	20
	Mean		203	12	389	23	503	30	731	44	892	54
	LSD (5%)		172	10	242	13	294	15	384	17	421	17

Correlation (Fruit value with value in harvests 1 and 2) = 0.61\*\*

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	NC-Danbury	NCStateUniv	7.7	8.0	7.0	6.7	8.3
2	Exp06-3565	Bejo Seeds	7.6	8.0	7.7	8.0	6.7
3	Vlaspik	Seminis	7.6	7.3	6.3	8.0	7.3
4	Wainwright	Nunhems	7.4	7.3	7.7	7.3	7.7
5	Exp06-3558	Bejo Seeds	7.4	7.0	7.7	8.0	7.3
6	Johnston	NCStateUniv	7.3	7.3	7.0	7.0	7.7
7	Exp06-3566	Bejo Seeds	7.2	7.0	8.3	7.3	7.3
8	Cates	Nunhems	7.1	7.3	6.7	7.0	7.0
9	Ballerina(P)	Nunhems	7.1	7.3	7.0	7.7	6.3
10	H-19	Univ. Ark.	7.0	8.0	6.0	6.0	7.0
11	Sumter	ClemsonUniv	6.9	7.3	5.0	6.0	7.3
12	HMX-5406	HarrisMoran	6.9	6.7	6.3	7.0	7.0
13	Pershing	Nunhems	6.9	6.3	7.7	7.7	6.7
14	Feisty(9464)	HarrisMoran	6.9	6.7	8.0	7.0	7.0
15	NC-Dawson	NCStateUniv	6.8	7.3	8.0	6.0	7.0
16	Ballerina	Nunhems	6.8	7.3	7.7	6.3	6.7
17	NC-Dixon	NCStateUniv	6.8	7.3	6.0	5.7	7.3
18	MacArthur	Nunhems	6.8	7.0	8.0	6.7	6.7
19	PX0496-4769	Seminis	6.8	6.3	8.0	7.0	7.0
20	Jackson(3540)	Nunhems	6.7	7.3	8.0	6.0	6.7
21	Crispina	Nunhems	6.7	7.0	6.7	6.3	6.7
22	NC-Lexington2	NCStateUniv	6.6	6.7	6.0	5.7	7.3
23	NC-Moriah	NCStateUniv	6.6	7.3	7.7	5.7	6.7
24	NC-Duplin	NCStateUniv	6.4	7.7	7.7	5.0	6.7
25	Raleigh	NCStateUniv	6.4	6.7	6.7	6.3	6.3
26	Crispina(P)	Nunhems	6.4	6.3	6.3	6.3	6.7
27	Starex	Baker Seeds	6.4	6.0	6.0	7.3	6.0
28	NC-Davie	ZerainGeder	6.3	7.7	6.3	4.7	6.7
29	PX0496-4729	Seminis	6.3	6.7	7.7	6.3	6.0
30	LB-17	Baker Seeds	6.3	6.3	6.7	6.0	6.7
31	NC-Leland(P)	NCStateUniv	6.3	6.0	5.0	7.0	6.0
32	Calypso	NCStateUniv	6.2	7.3	5.0	4.7	6.7
33	NC-Longhurst	NCStateUniv	6.2	6.3	6.3	5.7	6.7
34	Atlantis	Bejo Seeds	6.1	6.3	7.3	5.3	6.7
35	NC-Merritt	NCStateUniv	6.0	6.3	8.0	5.3	6.3
36	NC-Leland	NCStateUniv	6.0	6.0	7.0	6.0	6.0
37	NC-Lexington(P)	NCStateUniv	6.0	5.0	5.0	8.0	5.0
38	NC-Longhurst(P)	NCStateUniv	5.9	6.3	5.0	6.7	4.7
39	NC-Denton	NCStateUniv	5.9	6.0	8.0	5.7	6.0
40	Wis.SMR 18	Univ. Wis.	5.8	7.0	4.0	5.0	5.3
41	HS-500	HortAg Seed	5.8	6.0	5.3	5.7	5.7
42	Coolgreen	Check	5.7	6.3	4.0	4.7	6.0
	CV (%)		8.0	11.9	9.4	13.4	11.8
	Mean		6.6	6.8	6.7	6.4	6.6
	LSD (5%)		0.9	1.3	1.0	1.4	1.3

<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) = 0.12<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	Sumter	ClemsonUniv	22	3.2	K	H	X	W	K	K
2	H-19	Univ. Ark.	21	3.4	V	V	V	G	G	G
3	NC-Leland	NCStateUniv	21	3.6	X	X	X	V	V	V
4	NC-Lexington2	NCStateUniv	20	3.1	H	V	K	K	K	T
5	NC-Leland(P)	NCStateUniv	20	3.5	X	X	X	V	V	V
6	NC-Lexington(P)	NCStateUniv	20	2.8	W	W	W	K	K	K
7	NC-Longhurst	NCStateUniv	19	3.4	G	V	G	T	G	T
8	Wis.SMR 18	Univ. Wis.	19	3.0	W	Y	Y	H	W	W
9	NC-Danbury	NCStateUniv	19	3.3	K	K	K	K	K	K
10	Johnston	NCStateUniv	19	3.2	H	K	K	K	G	G
11	Vlaspik	Seminis	18	3.1	G	K	G	K	G	K
12	Exp06-3558	Bejo Seeds	18	3.1	H	D	C	K	H	K
13	NC-Dixon	NCStateUniv	18	3.0	H	H	K	K	K	H
14	Pershing	Nunhems	18	3.4	M	G	G	T	T	T
15	Raleigh	NCStateUniv	18	3.2	H	G	K	D	T	D
16	NC-Longhurst(P)	NCStateUniv	18	3.7	V	V	V	G	G	G
17	Exp06-3565	Bejo Seeds	18	3.1	H	K	G	T	T	T
18	HMX-5406	HarrisMoran	18	3.3	K	G	T	M	T	K
19	Feisty(9464)	HarrisMoran	18	3.2	K	K	G	T	T	K
20	MacArthur	Nunhems	18	3.4	M	G	G	D	T	K
21	NC-Duplin	NCStateUniv	18	3.1	H	H	K	M	K	H
22	Crispina(P)	Nunhems	18	3.2	H	K	G	A	G	A
23	PX0496-4729	Seminis	18	3.0	C	T	T	M	N	K
24	LB-17	Baker Seeds	18	2.9	T	K	T	W	H	D
25	Atlantis	Bejo Seeds	18	3.0	A	A	K	H	H	G
26	NC-Denton	NCStateUniv	18	3.3	K	K	G	D	G	K
27	HS-500	HortAg Seed	18	3.1	M	W	W	T	T	T
28	Crispina	Nunhems	17	3.1	H	K	H	T	G	T
29	Wainwright	Nunhems	17	3.3	K	T	G	C	G	K
30	Ballerina(P)	Nunhems	17	3.5	H	K	M	K	G	K
31	Ballerina	Nunhems	16	3.2	H	D	T	K	G	G
32	PX0496-4769	Seminis	16	3.0	K	K	T	T	T	D
33	Jackson(3540)	Nunhems	16	3.1	H	H	D	K	K	T
34	Exp06-3566	Bejo Seeds	16	3.0	K	K	K	H	G	T
35	Cates	Nunhems	16	3.3	K	K	G	G	G	T
36	Calypso	NCStateUniv	16	2.9	H	H	H	T	T	K
37	Starex	Baker Seeds	16	3.2	T	D	T	W	T	G
38	NC-Moriah	NCStateUniv	15	3.4	D	K	O	K	G	G
39	NC-Davie	ZeraimGeder	15	3.1	K	H	K	H	K	H
40	NC-Dawson	NCStateUniv	15	3.5	K	K	K	U	G	T
41	NC-Merritt	NCStateUniv	15	3.0	H	D	O	K	H	D
42	Coolgreen	Check	13	3.4	G	G	G	T	T	T
CV (%)			7	4.9						
Mean			18	3.2						
LSD (5%)			2	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	Crispina(P)	Nunhems	9	7	7
2	Ballerina	Nunhems	9	7	7
3	PX0496-4729	Seminis	9	7	6
4	Cates	Nunhems	9	6	7
5	Crispina	Nunhems	9	6	6
6	Johnston	NCStateUniv	9	6	8
7	HS-500	HortAg Seed	9	6	7
8	MacArthur	Nunhems	9	6	8
9	PX0496-4769	Seminis	9	6	7
10	Feisty(9464)	HarrisMoran	8	8	8
11	Ballerina(P)	Nunhems	8	7	7
12	Vlaspik	Seminis	8	6	7
13	Pershing	Nunhems	8	6	8
14	Exp06-3566	Bejo Seeds	8	6	7
15	Starex	Baker Seeds	8	7	7
16	Exp06-3558	Bejo Seeds	8	7	8
17	Atlantis	Bejo Seeds	8	6	7
18	Exp06-3565	Bejo Seeds	8	6	9
19	Calypso	NCStateUniv	8	5	7
20	Jackson(3540)	Nunhems	8	4	9
21	LB-17	Baker Seeds	8	7	7
22	NC-Merritt	NCStateUniv	7	7	7
23	Wainwright	Nunhems	7	6	8
24	Raleigh	NCStateUniv	7	7	8
25	HMX-5406	HarrisMoran	6	7	6
26	NC-Leland(P)	NCStateUniv	6	4	5
27	NC-Lexington2	NCStateUniv	6	5	5
28	NC-Danbury	NCStateUniv	5	7	7
29	NC-Longhurst(P)	NCStateUniv	5	7	5
30	NC-Leland	NCStateUniv	5	5	5
31	NC-Dawson	NCStateUniv	5	6	8
32	Coolgreen	Check	5	6	6
33	H-19	Univ. Ark.	5	5	6
34	NC-Longhurst	NCStateUniv	5	5	5
35	NC-Denton	NCStateUniv	4	7	8
36	Wis.SMR 18	Univ. Wis.	4	8	4
37	NC-Duplin	NCStateUniv	4	6	8
38	NC-Davie	ZeraimGeder	4	5	8
39	Sumter	ClemsonUniv	4	8	8
40	NC-Moriah	NCStateUniv	4	7	8
41	NC-Lexington(P)	NCStateUniv	4	6	5
42	NC-Dixon	NCStateUniv	4	6	7
	CV (%)		17	16	14
	Mean		7	6	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) = 0.25\*\*; (Yield w/ vine size) = 0.15<sup>ns</sup>



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	Crispina (P)	Nunhems	1.0
2	PX0496-4729	Seminis	1.0
3	Johnston	NCStateUniv	1.0
4	Feisty (9464)	HarrisMoran	1.0
5	Pershing	Nunhems	1.0
6	Raleigh	NCStateUniv	1.0
7	NC-Leland (P)	NCStateUniv	1.0
8	NC-Leland	NCStateUniv	1.0
9	NC-Denton	NCStateUniv	1.0
10	NC-Moriah	NCStateUniv	1.0
11	NC-Lexington (P)	NCStateUniv	1.0
12	Cates	Nunhems	1.3
13	MacArthur	Nunhems	1.3
14	PX0496-4769	Seminis	1.3
15	Ballerina (P)	Nunhems	1.3
16	Vlaspik	Seminis	1.3
17	Exp06-3558	Bejo Seeds	1.3
18	LB-17	Baker Seeds	1.3
19	NC-Merritt	NCStateUniv	1.3
20	Wainwright	Nunhems	1.3
21	NC-Lexington2	NCStateUniv	1.3
22	NC-Dawson	NCStateUniv	1.3
23	Sumter	ClemsonUniv	1.3
24	Exp06-3566	Bejo Seeds	1.7
25	Starex	Baker Seeds	1.7
26	Exp06-3565	Bejo Seeds	1.7
27	Calypso	NCStateUniv	1.7
28	Jackson (3540)	Nunhems	1.7
29	HMX-5406	HarrisMoran	1.7
30	NC-Duplin	NCStateUniv	1.7
31	NC-Danbury	NCStateUniv	2.0
32	NC-Longhurst (P)	NCStateUniv	2.0
33	H-19	Univ. Ark.	2.0
34	NC-Davie	ZerainGeder	2.0
35	Crispina	Nunhems	2.3
36	HS-500	HortAg Seed	2.3
37	Ballerina	Nunhems	2.7
38	Atlantis	Bejo Seeds	2.7
39	NC-Dixon	NCStateUniv	2.7
40	NC-Longhurst	NCStateUniv	3.0
41	Wis.SMR 18	Univ. Wis.	7.0
42	Coolgreen	Check	8.0
	CV (%)		35.9
	Mean		1.8
	LSD (5%)		1.1

<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) = -0.18\*

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	Feisty(9464)	HarrisMoran	9.8	8.1	14.4	13.6
2	Ballerina	Nunhems	9.4	7.7	17.1	19.8
3	Jackson(3540)	Nunhems	9.3	7.8	17.7	18.4
4	Cates	Nunhems	8.8	7.5	14.3	16.6
5	Johnston	NCStateUniv	8.8	7.4	12.6	13.9
6	Exp06-3558	Bejo Seeds	8.7	7.4	13.1	14.2
7	LB-17	Baker Seeds	8.6	7.3	19.1	16.8
8	Starex	Baker Seeds	8.6	7.2	19.9	19.6
9	Wainwright	Nunhems	8.5	7.2	13.4	16.0
10	MacArthur	Nunhems	8.4	7.2	17.9	17.6
11	HMX-5406	HarrisMoran	8.4	7.2	17.5	16.5
12	Exp06-3566	Bejo Seeds	8.4	7.3	16.5	19.0
13	Vlaspik	Seminis	8.3	7.0	14.2	15.4
14	PX0496-4729	Seminis	8.3	7.1	20.5	18.6
15	NC-Moriah	NCStateUniv	8.3	7.1	18.7	19.1
16	Pershing	Nunhems	8.2	7.0	17.7	17.7
17	Crispina	Nunhems	8.1	6.8	20.1	21.5
18	NC-Dawson	NCStateUniv	8.0	7.0	18.6	20.1
19	NC-Duplin	NCStateUniv	8.0	6.8	21.4	21.0
20	Atlantis	Bejo Seeds	7.9	6.7	24.3	22.1
21	PX0496-4769	Seminis	7.8	6.8	19.8	20.1
22	Raleigh	NCStateUniv	7.6	6.6	21.3	19.1
23	Exp06-3565	Bejo Seeds	7.6	6.6	17.4	18.9
24	NC-Denton	NCStateUniv	7.6	6.5	24.3	22.5
25	NC-Danbury	NCStateUniv	7.5	6.6	16.4	19.1
26	NC-Merritt	NCStateUniv	7.3	6.4	25.3	23.5
27	NC-Lexington2	NCStateUniv	7.1	6.3	21.9	21.3
28	Ballerina(P)	Nunhems	7.1	6.0	20.2	21.7
29	HS-500	HortAg Seed	6.9	6.0	28.8	26.7
30	NC-Davie	ZerainGeder	6.9	6.0	23.9	25.2
31	Sumter	ClemsonUniv	6.7	5.9	22.1	20.8
32	Crispina(P)	Nunhems	6.7	5.8	23.7	22.6
33	NC-Longhurst	NCStateUniv	6.5	5.8	27.3	27.5
34	H-19	Univ. Ark.	6.3	5.6	23.4	24.1
35	NC-Dixon	NCStateUniv	6.3	5.6	26.9	27.5
36	NC-Leland	NCStateUniv	6.0	5.3	28.5	26.3
37	NC-Longhurst(P)	NCStateUniv	5.7	5.0	30.0	29.6
38	Calypso	NCStateUniv	5.4	4.9	27.5	29.2
39	Wis.SMR 18	Univ. Wis.	5.2	4.6	32.5	29.9
40	NC-Lexington(P)	NCStateUniv	5.0	4.5	29.6	27.7
41	Coolgreen	Check	4.7	4.2	34.8	35.6
42	NC-Leland(P)	NCStateUniv	4.5	4.0	28.6	27.3
	CV (%)		12.8	11.2	21.7	19.9
	Mean		7.5	6.4	21.5	21.5
	LSD (5%)		1.5	1.2	7.6	7.0

<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 (Yield with SWI1) = 0.86\*\*      Correlation (Yield with ARI1) = -0.60\*\*

## Summer (Stage 4) Pickling Cucumber Trial 2007

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 9 July, and harvested 8 times (Mondays and Thursdays) between 16 August and 10 September.

### Data Collection

1. Firmness was measured on 3 Grade 3 fruits using a Magness-Taylor tester with a 5/16" tip.
2. Length/Diameter ratio was calculated by measuring 10 Grade 2 fruits.
3. Quality ratings were from 1 to 9, with 1 = worst, 9 = best.
4. Disease ratings were from 0 to 9, with 0 = no disease, 1-2 = trace, 3-4 = slight, 5-6 = moderate, 7-8 = severe, 9 = plant dead.

### Results

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

1	Exp06-3566	Bejo Seeds
2	Wainwright	Nunhems
3	LB-17	Baker Seeds
4	Vlaspik	Seminis
5	Exp06-3558	Bejo Seeds
6	PX0496-4729	Seminis
7	PX0496-4769	Seminis
8	Atlantis	Bejo Seeds
9	Crispina	Nunhems
10	Starex	Baker Seeds
11	NC-Davie	ZeraimGdera
12	MacArthur	Nunhems
13	Cates	Nunhems
14	Johnston	NCStateUniv
15	Feisty(9464)	HarrisMoran

Table 13. 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	Exp06-3566	Bejo Seeds	1460	199	29	12	24	32	4	26
2	LB-17	Baker Seeds	1418	234	35	8	19	29	8	26
3	Wainwright	Nunhems	1407	205	37	11	28	21	3	26
4	NC-Davie	ZerainGdera	1398	204	29	8	28	29	6	26
5	PX0496-4729	Seminis	1372	193	28	8	24	34	7	21
6	Vlaspik	Seminis	1371	201	39	10	30	20	1	26
7	Exp06-3558	Bejo Seeds	1340	198	33	8	27	28	3	26
8	NC-Longhurst	NCStateUniv	1330	132	23	22	43	11	1	26
9	Starex	Baker Seeds	1270	210	40	10	19	25	6	26
10	MacArthur	Nunhems	1255	172	31	10	30	24	5	25
11	Raleigh	NCStateUniv	1240	187	23	9	24	31	13	22
12	NC-Lexington2	NCStateUniv	1183	130	19	14	41	26	0	26
13	PX0496-4769	Seminis	1172	172	31	8	27	29	5	19
14	NC-Leland	NCStateUniv	1143	116	18	19	42	19	2	26
15	Crispina	Nunhems	1117	138	19	8	25	14	1	26
16	Cates	Nunhems	1104	174	41	11	22	25	1	25
17	NC-Dawson	NCStateUniv	1100	168	36	8	23	28	4	25
18	Atlantis	Bejo Seeds	1069	172	31	39	11	15	4	22
19	Johnston	NCStateUniv	1019	154	40	11	25	22	2	25
20	Ballerina	Nunhems	997	119	21	11	24	11	0	26
21	Feisty(9464)	HarrisMoran	992	148	37	8	32	20	2	26
22	Jackson(3540)	Nunhems	992	160	44	7	27	21	1	25
23	Exp06-3565	Bejo Seeds	978	167	37	6	24	27	6	26
24	NC-Danbury	NCStateUniv	951	138	28	8	29	29	6	26
25	NC-Duplin	NCStateUniv	947	139	33	8	27	28	4	23
26	HMX-5406	HarrisMoran	920	162	46	9	18	24	3	26
27	Pershing	Nunhems	798	121	40	10	27	21	2	26
28	NC-Denton	NCStateUniv	784	137	42	7	20	28	3	25
29	NC-Moriah	NCStateUniv	779	130	46	8	22	21	3	26
30	HS-500	HortAg Seed	692	130	51	9	22	16	2	26
31	NC-Dixon	NCStateUniv	675	117	33	7	19	29	12	23
32	Calypso	NCStateUniv	639	97	32	9	31	20	8	23
33	NC-Merritt	NCStateUniv	633	127	52	7	20	20	1	26
34	Crispina(P)	Nunhems	525	95	46	8	21	23	3	26
35	Sumter	ClemsonUniv	480	92	48	9	19	19	6	26
36	Wis.SMR 18	Univ. Wis.	417	101	53	6	13	21	7	25
37	Ballerina(P)	Nunhems	405	58	26	8	22	11	1	26
38	NC-Longhurst(P)	NCStateUniv	221	29	36	21	24	5	14	26
CV (%)			36	31	30	91	30	30	111	12
Mean			989	148	35	10	25	22	4	25
LSD (5%)			587	74	17	15	12	11	8	5

Correlation (Fruit value with fruit weight) = 0.89\*\*

Table 14. Stage 4 summer pickle trial - earliness data (cultigens are ranked by fruit value in harvests 1 and 2).

Rank	Cultivar or line	Seed source	Cumulative fruit value and % of total value <sup>z</sup> (6 harvests) for harvest:									
			1		1-2		1-3		1-4		1-5	
			\$/A	%	\$/A	%	\$/A	%	\$/A	%	\$/A	%
1	Wainwright	Nunhems	324	24	595	43	753	53	898	63	948	67
2	Vlaspik	Seminis	267	19	580	42	679	49	881	64	964	70
3	Exp06-3566	Bejo Seeds	236	19	566	42	702	51	858	62	915	65
4	LB-17	Baker Seeds	253	17	535	37	736	51	989	69	1071	75
5	Atlantis	Bejo Seeds	340	49	494	61	562	66	710	75	782	80
6	Starex	Baker Seeds	226	19	430	36	591	49	792	64	882	71
7	Exp06-3558	Bejo Seeds	222	18	403	32	512	40	723	55	830	63
8	Crispina	Nunhems	150	9	401	24	489	29	700	42	744	44
9	Cates	Nunhems	179	18	367	34	473	44	653	60	704	64
10	Johnston	NCStateUniv	63	10	360	38	481	48	658	65	710	70
11	HMX-5406	HarrisMoran	137	20	354	45	452	54	530	61	599	68
12	Ballerina	Nunhems	104	7	353	23	441	29	574	38	641	43
13	Exp06-3565	Bejo Seeds	68	8	347	37	428	45	554	57	644	67
14	Jackson(3540)	Nunhems	101	10	342	32	455	44	625	62	690	68
15	Feisty(9464)	HarrisMoran	97	10	342	34	426	43	554	56	606	61
16	MacArthur	Nunhems	85	8	330	30	439	39	628	54	699	61
17	PX0496-4769	Seminis	68	5	259	21	346	29	474	40	586	49
18	Raleigh	NCStateUniv	101	8	254	20	356	28	615	50	715	57
19	Pershing	Nunhems	84	13	221	31	277	38	415	56	467	62
20	NC-Merritt	NCStateUniv	71	12	213	36	259	43	356	58	399	65
21	HS-500	HortAg Seed	64	12	207	34	257	41	368	56	410	63
22	NC-Davie	ZeraimGdera	32	2	193	14	393	28	732	52	834	59
23	PX0496-4729	Seminis	98	10	176	17	261	22	487	40	651	52
24	NC-Duplin	NCStateUniv	42	6	147	19	239	29	454	52	537	60
25	NC-Dixon	NCStateUniv	38	6	134	20	182	27	319	47	393	58
26	NC-Moriah	NCStateUniv	11	2	113	22	233	37	405	55	473	66
27	NC-Danbury	NCStateUniv	30	3	108	12	192	22	399	43	508	54
28	NC-Denton	NCStateUniv	8	1	104	16	180	25	384	50	444	58
29	NC-Dawson	NCStateUniv	11	2	98	14	164	22	429	46	523	54
30	Calypso	NCStateUniv	8	1	61	11	107	18	241	40	294	49
31	Sumter	ClemsonUniv	6	2	48	14	79	21	203	48	272	61
32	Crispina(P)	Nunhems	15	3	33	6	109	21	197	38	284	53
33	Ballerina(P)	Nunhems	9	2	20	3	93	15	182	30	198	33
34	Wis.SMR 18	Univ. Wis.	3	1	18	6	57	15	166	40	212	51
35	NC-Leland	NCStateUniv	3	0	15	1	49	4	263	21	368	30
36	NC-Longhurst	NCStateUniv	3	0	3	0	11	1	90	8	182	15
37	NC-Lexington2	NCStateUniv	0	0	0	0	36	3	258	21	394	32
38	NC-Longhurst(P)	NCStateUniv	0	0	0	0	0	0	16	5	34	11
	CV (%)		90	109	60	57	52	44	45	32	44	29
	Mean		94	9	243	24	329	32	494	49	569	56
	LSD (5%)		137	16	236	22	279	23	360	25	409	26

Correlation (Fruit value with value in harvests 1 and 2) = 0.51\*\*

Table 15. Stage 4 summer pickle trial - fruit quality data (cultigens are ranked by average quality).

Rank	Cultivar or line	Seed source	Average quality <sup>z</sup>	Shape <sup>z</sup>	Color <sup>y</sup>	Seed- cell <sup>z</sup>	Overall impres- sion <sup>z</sup>
1	NC-Duplin	NCStateUniv	7.6	7.3	6.7	7.7	7.7
2	PX0496-4769	Seminis	7.3	7.3	8.3	7.7	7.0
3	NC-Leland	NCStateUniv	7.1	6.3	5.7	8.0	7.0
4	PX0496-4729	Seminis	7.0	7.7	8.0	6.7	6.7
5	NC-Danbury	NCStateUniv	7.0	7.0	8.3	7.0	7.0
6	NC-Lexington2	NCStateUniv	7.0	7.0	5.7	6.7	7.3
7	Vlaspik	Seminis	7.0	6.7	7.3	7.7	6.7
8	Calypso	NCStateUniv	6.9	6.7	6.7	7.3	6.7
9	Exp06-3558	Bejo Seeds	6.9	6.3	6.0	7.7	6.7
10	Exp06-3566	Bejo Seeds	6.9	6.0	7.7	8.3	6.3
11	NC-Davie	ZerainGdera	6.9	7.7	6.3	5.7	7.3
12	NC-Dixon	NCStateUniv	6.8	7.0	6.3	6.7	6.7
13	Jackson(3540)	Nunhems	6.8	7.0	8.3	7.0	6.3
14	Johnston	NCStateUniv	6.8	6.3	7.0	7.3	6.7
15	LB-17	Baker Seeds	6.7	7.0	7.3	6.0	7.0
16	Cates	Nunhems	6.7	7.0	7.3	6.3	6.7
17	NC-Longhurst	NCStateUniv	6.7	7.0	7.0	7.0	6.0
18	Feisty(9464)	HarrisMoran	6.7	6.7	7.3	6.7	6.7
19	NC-Dawson	NCStateUniv	6.7	6.3	7.3	7.0	6.7
20	Atlantis	Bejo Seeds	6.7	6.0	7.3	7.7	6.3
21	Crispina	Nunhems	6.4	6.7	6.7	6.3	6.3
22	Ballerina(P)	Nunhems	6.4	6.0	7.0	7.7	5.7
23	Sumter	ClemsonUniv	6.4	6.3	5.0	6.7	6.3
24	HMX-5406	HarrisMoran	6.3	6.7	5.7	6.7	5.7
25	NC-Moriah	NCStateUniv	6.3	6.7	7.3	5.7	6.7
26	Exp06-3565	Bejo Seeds	6.3	6.3	8.0	6.7	6.0
27	Crispina(P)	Nunhems	6.2	5.7	6.3	7.0	6.0
28	Pershing	Nunhems	6.2	6.3	6.0	7.0	5.3
29	Wainwright	Nunhems	6.2	6.0	7.3	7.0	5.7
30	Starex	Baker Seeds	6.2	5.7	6.0	6.7	6.3
31	Ballerina	Nunhems	6.1	5.3	8.0	7.0	6.0
32	Raleigh	NCStateUniv	6.1	6.7	6.3	5.7	6.0
33	MacArthur	Nunhems	6.0	6.0	7.0	6.0	6.0
34	NC-Denton	NCStateUniv	5.9	6.0	7.7	5.7	6.0
35	NC-Merritt	NCStateUniv	5.9	5.7	8.0	5.7	6.3
36	NC-Longhurst(P)	NCStateUniv	5.7	5.0	8.0	6.0	6.0
37	HS-500	HortAg Seed	5.6	5.3	4.0	6.3	5.0
38	Wis.SMR 18	Univ. Wis.	4.4	4.7	4.0	4.0	4.7
	CV (%)		7.7	11.9	9.5	12.1	10.4
	Mean		6.5	6.4	6.9	6.7	6.4
	LSD (5%)		0.8	1.2	1.1	1.3	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) = 0.21\*

Table 16. Stage 4 summer pickle trial - other quality data (cultigens are ranked by average quality).<sup>z</sup>

Rank	Cultivar or line	Seed source	Firm- ness	L/D ratio	Defects1 <sup>o</sup>			Defects2 <sup>o</sup>		
					2	4	6	2	4	6
1	NC-Leland	NCStateUniv	17	3.5	K	K	V	G	G	T
2	PX0496-4729	Seminis	17	3.4	T	D	K	D	T	T
3	Sumter	ClemsonUniv	17	3.3	W	W	D	D	D	W
4	NC-Danbury	NCStateUniv	17	3.2	D	D	K	K	K	H
5	Exp06-3565	Bejo Seeds	17	3.5	K	K	K	D	D	T
6	Exp06-3558	Bejo Seeds	16	3.2	D	K	D	M	K	K
7	NC-Dixon	NCStateUniv	16	3.1	H	K	K	K	H	V
8	Johnston	NCStateUniv	16	3.0	K	K	D	D	H	M
9	Crispina	Nunhems	16	3.5	K	H	K	H	K	H
10	Pershing	Nunhems	16	3.3	D	D	M	T	G	G
11	Vlaspik	Seminis	16	3.5	G	G	D	D	T	G
12	NC-Longhurst	NCStateUniv	16	3.1	V	V	V	X	X	X
13	HMX-5406	HarrisMoran	16	3.4	M	M	M	D	D	W
14	Crispina(P)	Nunhems	16	3.3	D	D	M	W	G	H
15	Wis.SMR 18	Univ. Wis.	16	2.8	Y	Y	D	D	D	Y
16	PX0496-4769	Seminis	16	3.2	K	K	K	D	G	D
17	NC-Lexington2	NCStateUniv	16	3.2	K	V	K	V	T	G
18	Calypso	NCStateUniv	16	3.1	A	H	H	H	K	K
19	Exp06-3566	Bejo Seeds	16	3.0	H	D	D	D	H	H
20	LB-17	Baker Seeds	16	3.2	H	D	D	K	K	G
21	Atlantis	Bejo Seeds	16	3.0	T	D	D	D	H	M
22	Starex	Baker Seeds	16	3.4	D	G	M	K	T	T
23	MacArthur	Nunhems	16	3.3	D	D	G	K	G	I
24	Feisty(9464)	HarrisMoran	15	3.4	K	G	G	T	K	K
25	Ballerina(P)	Nunhems	15	3.3	K	D	D	W	K	W
26	NC-Davie	ZeraimGdera	15	3.5	K	D	K	D	H	D
27	Cates	Nunhems	15	3.4	K	K	K	G	G	G
28	Wainwright	Nunhems	15	3.6	D	D	D	G	G	T
29	Ballerina	Nunhems	15	3.5	D	D	K	H	H	H
30	NC-Denton	NCStateUniv	15	3.2	G	G	D	T	T	G
31	NC-Duplin	NCStateUniv	15	3.1	K	K	K	H	K	H
32	NC-Moriah	NCStateUniv	15	3.3	G	G	K	K	T	G
33	Raleigh	NCStateUniv	15	3.3	H	K	W	D	G	K
34	Jackson(3540)	Nunhems	14	3.2	K	D	D	D	T	H
35	HS-500	HortAg Seed	14	3.4	W	D	D	D	W	W
36	NC-Merritt	NCStateUniv	14	3.5	D	D	K	G	K	G
37	NC-Longhurst(P)	NCStateUniv	14	3.1	H	H	H	D	D	D
38	NC-Dawson	NCStateUniv	13	3.4	G	K	G	K	G	T
CV (%)			9	7.5						
Mean			16	3.3						
LSD (5%)			2	0.4						

<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)	

Not for publication

Table 17. Stage 4 summer pickle trial - sex expression and vine data (cultigens are ranked by gynoecious rating).

Rank	Cultivar or line	Seed source	Gyn. rating <sup>z</sup>	Vine size <sup>y</sup>	Vine color <sup>x</sup>
1	HS-500	HortAg Seed	9	7	6
2	Crispina	Nunhems	9	7	9
3	Crispina(P)	Nunhems	9	6	8
4	Johnston	NCStateUniv	9	5	8
5	Ballerina(P)	Nunhems	9	5	8
6	Ballerina	Nunhems	9	7	8
7	Starex	Baker Seeds	8	8	7
8	Vlaspik	Seminis	8	6	8
9	Jackson(3540)	Nunhems	8	6	8
10	Cates	Nunhems	8	6	7
11	LB-17	Baker Seeds	8	8	6
12	Wainwright	Nunhems	8	8	9
13	HMX-5406	HarrisMoran	7	8	6
14	PX0496-4729	Seminis	7	7	6
15	Exp06-3565	Bejo Seeds	7	7	6
16	Raleigh	NCStateUniv	7	7	7
17	Exp06-3566	Bejo Seeds	7	6	8
18	PX0496-4769	Seminis	7	6	7
19	Calypso	NCStateUniv	7	5	7
20	MacArthur	Nunhems	6	7	9
21	Exp06-3558	Bejo Seeds	6	8	7
22	Feisty(9464)	HarrisMoran	5	7	7
23	Atlantis	Bejo Seeds	5	7	7
24	NC-Merritt	NCStateUniv	4	6	6
25	Pershing	Nunhems	4	6	8
26	NC-Dixon	NCStateUniv	4	6	6
27	NC-Moriah	NCStateUniv	3	7	7
28	NC-Danbury	NCStateUniv	3	5	7
29	NC-Leland	NCStateUniv	3	3	7
30	NC-Longhurst	NCStateUniv	3	3	6
31	NC-Lexington2	NCStateUniv	3	3	7
32	Sumter	ClemsonUniv	3	7	8
33	NC-Dawson	NCStateUniv	3	6	7
34	NC-Davie	ZeraimGdera	3	6	8
35	NC-Duplin	NCStateUniv	3	5	7
36	NC-Longhurst(P)	NCStateUniv	3	3	5
37	Wis.SMR 18	Univ. Wis.	2	8	4
38	NC-Denton	NCStateUniv	2	6	7
	CV (%)		20	14	10
	Mean		6	6	7
	LSD (5%)		2	1	1

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

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

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

Correlation (Yield with gynoecious rating)=0.18<sup>ns</sup>      Yield with vine size=0.18<sup>ns</sup>



Table 18. Stage 4 summer pickle trial - disease data (cultigens are ranked by average disease resistance).<sup>z</sup>

Rank	Cultivar or line	Seed source	Downy mildew
1	PX0496-4729	Seminis	1.7
2	Calypso	NCStateUniv	2.0
3	NC-Leland	NCStateUniv	2.0
4	NC-Dawson	NCStateUniv	2.0
5	PX0496-4769	Seminis	2.3
6	NC-Danbury	NCStateUniv	2.3
7	NC-Lexington2	NCStateUniv	2.3
8	MacArthur	Nunhems	2.7
9	NC-Davie	ZeraimGdera	2.7
10	NC-Duplin	NCStateUniv	2.7
11	NC-Denton	NCStateUniv	2.7
12	HMX-5406	HarrisMoran	3.0
13	Raleigh	NCStateUniv	3.0
14	Feisty(9464)	HarrisMoran	3.0
15	Crispina	Nunhems	3.3
16	LB-17	Baker Seeds	3.3
17	Wainwright	Nunhems	3.3
18	Exp06-3566	Bejo Seeds	3.3
19	HS-500	HortAg Seed	3.7
20	Johnston	NCStateUniv	3.7
21	Cates	Nunhems	3.7
22	NC-Longhurst	NCStateUniv	3.7
23	Exp06-3558	Bejo Seeds	4.0
24	Pershing	Nunhems	4.0
25	Exp06-3565	Bejo Seeds	4.3
26	NC-Merritt	NCStateUniv	4.3
27	NC-Moriah	NCStateUniv	4.3
28	Starex	Baker Seeds	4.7
29	Vlaspik	Seminis	4.7
30	Jackson(3540)	Nunhems	4.7
31	NC-Dixon	NCStateUniv	4.7
32	Ballerina	Nunhems	5.0
33	Atlantis	Bejo Seeds	5.0
34	NC-Longhurst(P)	NCStateUniv	5.0
35	Ballerina(P)	Nunhems	5.3
36	Sumter	ClemsonUniv	5.7
37	Crispina(P)	Nunhems	6.0
38	Wis.SMR 18	Univ. Wis.	6.7
	CV (%)		38.3
	Mean		3.7
	LSD (5%)		2.3

<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) = -0.41\*\*

Table 19. Stage 4 summer pickle trial - selection indexes (cultigens ranked by SWI1).<sup>z</sup>

Rank	Cultivar or line	Seed source	Simple weighted indexes		Average rank indexes	
			SWI1	SWI2	ARI1	ARI2
1	Exp06-3566	Bejo Seeds	7.6	6.6	12.7	13.0
2	Wainwright	Nunhems	7.5	6.4	17.1	15.7
3	LB-17	Baker Seeds	7.4	6.5	13.5	13.1
4	Vlaspik	Seminis	7.4	6.3	13.3	13.9
5	Exp06-3558	Bejo Seeds	6.7	6.0	15.0	14.7
6	PX0496-4729	Seminis	6.6	6.0	13.8	13.4
7	PX0496-4769	Seminis	6.5	5.9	11.7	13.2
8	Atlantis	Bejo Seeds	6.4	5.9	18.6	17.3
9	Crispina	Nunhems	6.4	5.5	18.0	17.4
10	Starex	Baker Seeds	6.4	5.7	19.5	18.3
11	NC-Davie	ZerainGdera	6.4	5.8	14.2	15.8
12	MacArthur	Nunhems	6.4	5.7	19.1	17.8
13	Cates	Nunhems	6.3	5.7	16.5	16.8
14	Johnston	NCStateUniv	6.2	5.6	16.5	15.8
15	Feisty(9464)	HarrisMoran	6.2	5.5	16.4	16.6
16	Raleigh	NCStateUniv	6.1	5.5	19.1	18.5
17	Jackson(3540)	Nunhems	6.0	5.4	18.1	19.2
18	HMX-5406	HarrisMoran	6.0	5.5	19.2	16.9
19	Exp06-3565	Bejo Seeds	5.9	5.4	20.0	18.1
20	Ballerina	Nunhems	5.7	4.9	22.1	22.4
21	NC-Duplin	NCStateUniv	5.7	5.3	13.3	16.7
22	NC-Dawson	NCStateUniv	5.6	5.3	17.3	19.0
23	NC-Danbury	NCStateUniv	5.6	5.1	16.1	16.5
24	NC-Longhurst	NCStateUniv	5.5	5.0	19.6	21.2
25	NC-Leland	NCStateUniv	5.5	5.0	15.7	17.0
26	NC-Lexington2	NCStateUniv	5.5	5.0	16.5	18.6
27	Pershing	Nunhems	5.2	4.7	22.4	21.2
28	NC-Denton	NCStateUniv	4.9	4.6	23.8	22.6
29	Calypso	NCStateUniv	4.9	4.5	18.9	20.0
30	NC-Moriah	NCStateUniv	4.8	4.6	22.9	23.3
31	NC-Dixon	NCStateUniv	4.7	4.4	20.9	21.4
32	NC-Merritt	NCStateUniv	4.7	4.6	25.3	24.6
33	HS-500	HortAg Seed	4.7	4.4	26.2	24.6
34	Sumter	ClemsonUniv	3.8	3.6	26.6	26.1
35	Crispina(P)	Nunhems	3.8	3.5	27.5	27.5
36	Ballerina(P)	Nunhems	3.8	3.4	26.7	28.0
37	NC-Longhurst(P)	NCStateUniv	3.2	2.9	31.4	32.1
38	Wis.SMR 18	Univ. Wis.	2.9	2.7	35.6	33.3
	CV (%)		16.7	14.3	19.2	17.5
	Mean		5.7	5.1	19.5	19.5
	LSD (5%)		1.5	1.2	6.1	5.5

<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) = 0.90\*\*

Correlation (Yield with ARI1) = -0.67\*\*

# Slicing Cucumbers

## Preliminary (Stage 1) Slicing Cucumber Trial 2007

The stage 1 slicer trial was not run this year.

## Observational (Stage 2) Slicing Cucumber Trial 2007

The stage 2 slicer trial was not run this year.

## Spring (Stage 3) Slicing Cucumber Trial 2007

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 26 April, and harvested 6 times (Mondays and Thursdays) between 18 June and 5 July.

### Data Collection

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

### Results

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

01	G83xNC-58	NCStateUniv
02	Dasher II	Seminis
03	NC-Stratford	NCStateUniv
04	PX147-10896	Seminis
05	G83xNC-62	NCStateUniv
06	G83xNC-63	NCStateUniv
07	PX147-10885	Seminis
08	NC-Sunshine	NCStateUniv

Table 20. 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 fancy +No.1	Percent culls	Plants per A (x1000)
			Fancy +No.1	Market- able			
1	Dasher II	Seminis	92	200	39	16	26
2	G83xNC-58	NCStateUniv	91	177	38	26	26
3	G83xNC-62	NCStateUniv	89	187	41	19	19
4	G83xNC-63	NCStateUniv	83	164	41	21	22
5	Panther	Nunhems	83	176	41	14	26
6	PX147-10896	Seminis	79	190	36	14	26
7	General Lee	HarrisMoran	75	180	37	14	26
8	Ashley	Check	75	141	49	9	18
9	NC-Stratford	NCStateUniv	71	193	28	24	26
10	PX147-10885	Seminis	70	138	39	21	17
11	NC-Sunshine	NCStateUniv	65	146	37	24	20
12	G83xNC-59	NCStateUniv	64	160	37	14	20
13	Cherokee 87	Check	63	168	30	19	26
14	WSA-9119	WesternSeed	61	137	34	18	26
15	Marketmore 76	Check	53	93	51	7	26
16	Poinsett 76	CornellUniv	39	133	26	12	26
17	WSA-8119	WesternSeed	30	80	28	27	26
18	G57xNC-59	NCStateUniv	25	49	16	3	12
19	G57xNC-58	NCStateUniv	24	61	9	10	9
20	G57xNC-63	NCStateUniv	22	48	9	13	26
21	G57xNC-62	NCStateUniv	13	38	8	10	26
	CV (%)		43	38	37	55	27
	Mean		60	136	32	16	23
	LSD (5%)		43	86	20	14	10

Correlation (Marketable yield with % culls) = 0.46\*\*

Table 21. 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	NC-Stratford	NCStateUniv	45	24	82	42	98	52	143	74	172	89
2	G83xNC-58	NCStateUniv	56	32	78	44	101	57	126	71	164	93
3	Dasher II	Seminis	24	12	61	31	91	46	119	60	164	82
4	PX147-10896	Seminis	24	13	58	31	104	56	132	70	161	85
5	G83xNC-62	NCStateUniv	28	14	54	27	94	50	113	59	148	78
6	NC-Sunshine	NCStateUniv	37	23	49	32	65	44	92	62	131	89
7	G83xNC-63	NCStateUniv	32	20	48	29	65	40	98	59	137	84
8	General Lee	HarrisMoran	16	8	40	23	90	52	119	68	141	79
9	G83xNC-59	NCStateUniv	12	8	37	23	80	50	104	65	132	83
10	PX147-10885	Seminis	19	14	35	25	59	43	88	63	117	86
11	Cherokee 87	Check	19	11	34	20	67	39	99	59	132	79
12	G57xNC-58	NCStateUniv	19	11	24	13	34	19	39	22	55	30
13	G57xNC-63	NCStateUniv	16	11	19	13	23	15	35	24	40	27
14	Panther	Nunhems	8	5	17	11	74	43	102	59	140	80
15	WSA-8119	WesternSeed	8	12	15	19	37	43	48	56	64	77
16	G57xNC-62	NCStateUniv	7	6	15	13	19	17	27	23	38	33
17	Poinsett 76	CornellUniv	5	5	14	12	35	28	52	40	97	74
18	WSA-9119	WesternSeed	4	5	13	10	49	39	95	73	115	87
19	G57xNC-59	NCStateUniv	3	2	10	7	23	16	35	24	42	29
20	Ashley	Check	1	1	4	3	20	14	48	34	92	64
21	Marketmore 76	Check	0	0	2	4	12	14	21	23	54	56
	CV (%)		72	67	58	54	42	36	44	37	40	31
	Mean		18	11	34	21	59	37	83	52	111	71
	LSD (5%)		22	13	32	18	41	22	60	32	73	36

Correlation (Marketable yield with yield in harvests 1-2) = 0.70\*\*

Correlation (Marketable yield with % of yield in harvests 1-2) = 0.59\*\*

Table 22. Stage 3 spring slicer trial - fruit quality data (cultigens ranked by average quality).<sup>z</sup>

Rank	Cultivar or line	Seed source	Average quality	Shape	Color	Seed- cell	Overall impression
1	PX147-10896	Seminis	7.6	8	8	7	8
2	Panther	Nunhems	7.0	6	7	8	7
3	G83xNC-62	NCStateUniv	6.9	7	9	6	8
4	G83xNC-59	NCStateUniv	6.9	7	8	7	7
5	WSA-8119	WesternSeed	6.8	7	8	7	7
6	NC-Sunshine	NCStateUniv	6.7	6	9	8	6
7	G83xNC-58	NCStateUniv	6.6	7	9	6	6
8	Dasher II	Seminis	6.4	7	8	6	6
9	G83xNC-63	NCStateUniv	6.4	7	9	6	6
10	PX147-10885	Seminis	6.3	7	8	5	7
11	NC-Stratford	NCStateUniv	6.3	6	8	6	7
12	WSA-9119	WesternSeed	6.3	6	9	7	6
13	Poinsett 76	CornellUniv	5.9	6	7	6	6
14	Marketmore 76	Check	5.9	6	7	5	7
15	General Lee	HarrisMoran	5.7	6	7	5	6
16	G57xNC-58	NCStateUniv	5.7	6	8	6	5
17	G57xNC-59	NCStateUniv	5.3	6	8	5	5
18	G57xNC-63	NCStateUniv	5.3	5	8	6	5
19	G57xNC-62	NCStateUniv	5.3	5	8	6	5
20	Cherokee 87	Check	5.2	6	6	5	5
21	Ashley	Check	5.2	6	5	6	4
	CV (%)		8.0	14	6	15	14
	Mean		6.2	6	8	6	6
	LSD (5%)		0.8	1	1	2	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) = 0.44\*\*

Table 23. Stage 3 spring slicer trial - fruit dimensions and comments (cultigens ranked by average quality rating).<sup>z</sup>

Rank	Cultivar or line	Seed source	Length (inch)	Diameter (inch)	Wt. (lb.)	Defect1°			Defect2°		
						2	4	6	2	4	6
1	PX147-10896	Seminis	7.6	2.1	0.72	H	H	K	K	T	H
2	Panther	Nunhems	7.3	2.1	0.59	H	K	G	T	T	I
3	G83xNC-62	NCStateUniv	7.9	2.1	0.72	C	K	T	K	T	K
4	G83xNC-59	NCStateUniv	6.9	1.9	0.52	H	H	H	K	T	C
5	WSA-8119	WesternSeed	7.4	1.7	0.48	T	H	T	H	T	K
6	NC-Sunshine	NCStateUniv	7.0	1.9	0.55	H	H	H	K	T	D
7	G83xNC-58	NCStateUniv	7.4	2.0	0.65	K	K	H	K	T	D
8	Dasher II	Seminis	7.2	1.9	0.58	K	K	H	H	H	C
9	G83xNC-63	NCStateUniv	7.4	1.9	0.58	K	K	T	H	T	C
10	PX147-10885	Seminis	7.7	1.9	0.63	T	H	H	K	T	T
11	NC-Stratford	NCStateUniv	7.1	2.0	0.61	H	H	H	K	D	D
12	WSA-9119	WesternSeed	7.0	1.8	0.48	C	D	T	H	H	G
13	Poinsett 76	CornellUniv	6.2	1.8	0.43	H	H	H	L	T	D
14	Marketmore 76	Check	6.5	1.7	0.43	K	K	H	T	T	K
15	General Lee	HarrisMoran	7.3	2.0	0.63	H	H	H	K	T	D
16	G57xNC-58	NCStateUniv	7.1	1.9	0.54	C	H	H	H	D	C
17	G57xNC-59	NCStateUniv	6.4	1.9	0.53	H	H	H	L	K	D
18	G57xNC-63	NCStateUniv	7.2	1.9	0.54	N	H	H	H	D	C
19	G57xNC-62	NCStateUniv	7.0	1.9	0.52	C	H	H	H	D	D
20	Cherokee 87	Check	7.2	2.0	0.60	M	H	H	H	M	D
21	Ashley	Check	6.5	1.8	0.48	M	H	H	L	M	M
CV (%)			5.6	6.3	15.90						
Mean			7.1	1.9	0.56						
LSD (5%)			0.7	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 24. Stage 3 spring slicer trial - sex expression and vine data (cultigens ranked by gynoecious rating).

Rank	Cultivar or line	Seed source	Gyn. rating <sup>z</sup>	Early yield (cwt/A)	Earli- ness (%) <sup>x</sup>	Vine size <sup>w</sup>	Vine color <sup>w</sup>
1	PX147-10896	Seminis	8	58	31	7	9
2	PX147-10885	Seminis	8	35	25	9	9
3	Panther	Nunhems	8	17	11	7	8
4	General Lee	HarrisMoran	7	40	23	8	8
5	G83xNC-59	NCStateUniv	7	37	23	7	5
6	Dasher II	Seminis	7	61	31	7	8
7	Marketmore 76	Check	7	2	4	4	4
8	WSA-8119	WesternSeed	7	15	19	7	7
9	G57xNC-58	NCStateUniv	7	24	13	6	9
10	G83xNC-58	NCStateUniv	7	78	44	5	6
11	WSA-9119	WesternSeed	7	13	10	8	7
12	Poinsett 76	CornellUniv	7	14	12	8	5
13	Cherokee 87	Check	7	34	20	6	6
14	Ashley	Check	7	4	3	6	3
15	G83xNC-62	NCStateUniv	7	54	27	5	6
16	G83xNC-63	NCStateUniv	6	48	29	6	4
17	G57xNC-62	NCStateUniv	6	15	13	8	9
18	G57xNC-59	NCStateUniv	6	10	7	5	9
19	G57xNC-63	NCStateUniv	5	19	13	5	9
20	NC-Stratford	NCStateUniv	4	82	42	6	5
21	NC-Sunshine	NCStateUniv	4	49	32	7	6
	CV (%)		9	58	54	14	12
	Mean		7	34	21	7	7
	LSD (5%)		1	32	18	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) = 0.22<sup>ns</sup>



Table 25. Stage 3 spring slicer trial - disease ratings (cultigens ranked by average disease resistance).<sup>z</sup>

Rank	Cultivar or line	Seed source	Downy mildew
1	PX147-10885	Seminis	1.0
2	WSA-9119	WesternSeed	1.3
3	Poinsett 76	CornellUniv	1.3
4	WSA-8119	WesternSeed	1.7
5	G57xNC-58	NCStateUniv	2.0
6	Cherokee 87	Check	2.0
7	G57xNC-62	NCStateUniv	2.0
8	G57xNC-59	NCStateUniv	2.0
9	G57xNC-63	NCStateUniv	2.0
10	General Lee	HarrisMoran	2.3
11	Dasher II	Seminis	2.3
12	G83xNC-59	NCStateUniv	2.7
13	NC-Stratford	NCStateUniv	2.7
14	G83xNC-63	NCStateUniv	3.0
15	Panther	Nunhems	3.3
16	NC-Sunshine	NCStateUniv	3.3
17	PX147-10896	Seminis	3.7
18	G83xNC-58	NCStateUniv	3.7
19	Ashley	Check	3.7
20	G83xNC-62	NCStateUniv	3.7
21	Marketmore 76	Check	4.3
	CV (%)		19.0
	Mean		2.6
	LSD (5%)		0.8

<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) = -0.24<sup>ns</sup>

Table 26. Stage 3 spring slicer trial - selection indexes (cultigens ranked by SWI1).<sup>z</sup>

Rank	Cultivar or line	Seed source	Simple weighted indexes		Average rank indexes	
			SWI1	SWI2	ARI1	ARI2
1	G83xNC-58	NCStateUniv	5.9	5.5	8.6	8.6
2	Dasher II	Seminis	5.8	5.4	7.9	7.4
3	NC-Stratford	NCStateUniv	5.8	5.5	9.2	8.2
4	PX147-10896	Seminis	5.7	5.4	7.4	8.2
5	G83xNC-62	NCStateUniv	5.6	5.2	8.9	9.8
6	G83xNC-63	NCStateUniv	5.4	5.1	9.2	9.5
7	PX147-10885	Seminis	5.2	5.0	8.8	8.5
8	NC-Sunshine	NCStateUniv	5.1	4.9	9.8	10.3
9	G83xNC-59	NCStateUniv	5.1	4.8	8.6	9.1
10	General Lee	HarrisMoran	5.0	4.7	11.5	10.8
11	Panther	Nunhems	4.9	4.6	9.6	10.7
12	WSA-9119	WesternSeed	4.7	4.5	10.3	10.3
13	Cherokee 87	Check	4.6	4.4	12.8	11.5
14	Poinsett 76	CornellUniv	4.3	4.1	11.9	11.4
15	WSA-8119	WesternSeed	4.3	4.2	9.9	10.3
16	G57xNC-58	NCStateUniv	3.9	3.7	13.1	12.7
17	Ashley	Check	3.9	3.7	15.2	15.5
18	G57xNC-63	NCStateUniv	3.7	3.6	14.0	13.5
19	Marketmore 76	Check	3.6	3.5	15.2	16.4
20	G57xNC-59	NCStateUniv	3.6	3.5	14.6	14.1
21	G57xNC-62	NCStateUniv	3.5	3.4	14.7	14.3
	CV (%)		15.0	14.1	20.8	21.7
	Mean		4.7	4.5	11.0	11.0
	LSD (5%)		1.2	1.1	3.8	3.9

<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) = 0.89\*\*  
 Correlation (Marketable yield with ARI1) = -0.74\*\*

## Summer (Stage 4) Slicing Cucumber Trial 2007

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 9 July, and harvested 4 times (Mondays and Thursdays) between 20 August and 7 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-59	NCStateUniv
02	PX147-10896	Seminis
03	G83xNC-63	NCStateUniv
04	G83xNC-62	NCStateUniv
05	G83xNC-58	NCStateUniv
06	WSA-9119	WesternSeed

Table 27. 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 fancy +No.1	Percent culls	Plants per A (x1000)
			Fancy +No.1	Market- able			
1	G83xNC-59	NCStateUniv	67	137	31	31	26
2	WSA-9119	WesternSeed	35	72	33	32	26
3	PX147-10896	Seminis	35	79	25	37	26
4	G83xNC-62	NCStateUniv	34	60	34	41	25
5	G83xNC-63	NCStateUniv	34	63	34	37	25
6	G83xNC-58	NCStateUniv	32	65	28	43	26
7	Cherokee 87	Check	32	61	24	53	26
8	General Lee	HarrisMoran	31	67	27	38	26
9	Dasher II	Seminis	26	48	29	45	26
10	NC-Sunshine	NCStateUniv	26	60	22	47	26
11	Ashley	Check	17	29	32	16	8
12	NC-Stratford	NCStateUniv	17	44	18	54	26
13	WSA-8119	WesternSeed	17	32	28	44	26
14	PX147-10885	Seminis	16	37	27	34	23
15	Panther	Nunhems	13	35	23	38	26
16	G57xNC-59	NCStateUniv	5	13	5	18	9
17	G57xNC-63	NCStateUniv	4	15	4	19	9
18	G57xNC-58	NCStateUniv	1	3	2	29	9
CV (%)			91	72	57	46	29
Mean			25	51	24	36	22
LSD (5%)			37	61	23	28	10

Correlation (Marketable yield with % culls) = 0.02<sup>ns</sup>

Table 28. Stage 4 summer slicer trial - earliness data (cultigens ranked by weight of Fancy + No.1 grade fruit in harvests 1 and 2).

Rank	Cultivar or line	Seed source	Cumulative fruit weight and % of total weight (6 harvests) for harvest:									
			1		1-2		1-3		1-4		1-5	
			Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%
1	NC-Sunshine	NCStateUniv	6	5	21	32	38	60	46	76	53	93
2	G83xNC-62	NCStateUniv	0	0	20	39	36	64	45	77	56	93
3	PX147-10896	Seminis	0	0	19	33	46	60	54	68	68	89
4	G83xNC-58	NCStateUniv	0	0	9	10	30	34	43	62	53	88
5	G83xNC-63	NCStateUniv	2	2	8	13	17	25	33	49	55	88
6	NC-Stratford	NCStateUniv	2	4	6	15	18	40	31	72	41	94
7	G83xNC-59	NCStateUniv	1	0	6	3	37	19	76	47	121	85
8	G57xNC-59	NCStateUniv	0	0	6	14	10	26	11	28	13	33
9	PX147-10885	Seminis	2	4	4	9	7	14	16	37	31	84
10	WSA-9119	WesternSeed	1	1	4	5	22	22	39	52	60	83
11	General Lee	HarrisMoran	0	0	3	6	23	38	38	56	55	81
12	Cherokee 87	Check	1	1	3	4	10	17	30	47	52	85
13	Dasher II	Seminis	0	0	3	7	10	21	27	55	39	81
14	G57xNC-58	NCStateUniv	1	14	2	18	3	26	3	26	3	29
15	WSA-8119	WesternSeed	0	0	2	4	2	5	5	14	23	74
16	G57xNC-63	NCStateUniv	0	0	1	3	7	15	8	18	10	23
17	Panther	Nunhems	0	0	1	3	2	7	11	34	21	67
18	Ashley	Check	0	0	0	0	1	2	6	14	21	49
	CV (%)		329	371	120	126	106	79	91	53	73	34
	Mean		1	2	6	12	18	28	29	46	43	73
	LSD (5%)		5	11	13	25	31	36	44	41	52	41

Correlation (Marketable yield with yield in harvests 1-2) = 0.36\*\*

Correlation (Marketable yield with % of yield in harvests 1-2) = 0.04<sup>ns</sup>

Table 29. Stage 4 summer slicer trial - fruit quality data (cultigens ranked by average quality).<sup>z</sup>

Rank	Cultivar or line	Seed source	Average quality	Shape	Color	Seed- cell	Overall impression
1	PX147-10896	Seminis	7.2	8	8	7	7
2	G83xNC-58	NCStateUniv	6.9	7	8	7	7
3	Dasher II	Seminis	6.8	6	7	8	6
4	NC-Stratford	NCStateUniv	6.8	6	7	8	6
5	G83xNC-59	NCStateUniv	6.7	6	7	7	7
6	G83xNC-63	NCStateUniv	6.6	6	8	7	6
7	NC-Sunshine	NCStateUniv	6.6	6	8	8	6
8	WSA-9119	WesternSeed	6.6	6	8	7	6
9	G83xNC-62	NCStateUniv	6.4	6	9	7	6
10	PX147-10885	Seminis	6.4	6	9	7	6
11	General Lee	HarrisMoran	6.2	6	7	7	6
12	Ashley	Check	6.0	6	4	7	5
13	WSA-8119	WesternSeed	6.0	5	7	8	5
14	Panther	Nunhems	5.9	5	6	8	4
15	G57xNC-58	NCStateUniv	5.6	5	9	7	5
16	Cherokee 87	Check	5.4	5	6	6	5
17	G57xNC-63	NCStateUniv	5.3	5	6	6	4
18	G57xNC-59	NCStateUniv	4.8	4	6	6	4
	CV (%)		9.8	16	12	11	16
	Mean		6.2	6	7	7	6
	LSD (5%)		1.0	2	2	1	2

<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) = 0.30\*

Table 30. Stage 4 summer slicer trial - fruit dimensions and comments (cultigens ranked by average quality rating).<sup>z</sup>

Rank	Cultivar or line	Seed source	Length (inch)	Diameter (inch)	Wt. (lb.)	Defect1°			Defect2°		
						2	4	6	2	4	6
1	PX147-10896	Seminis	7.3	2.0	0.58	A	K	H	T	T	T
2	G83xNC-58	NCStateUniv	7.5	1.9	0.60	K	K	K	T	T	T
3	Dasher II	Seminis	6.7	1.8	0.44	C	H	H	H	T	T
4	NC-Stratford	NCStateUniv	6.9	1.9	0.52	D	D	H	H	H	T
5	G83xNC-59	NCStateUniv	7.3	2.0	0.65	M	D	K	T	H	H
6	G83xNC-63	NCStateUniv	7.0	1.9	0.55	D	H	K	H	T	T
7	NC-Sunshine	NCStateUniv	7.0	1.9	0.57	A	D	D	K	H	H
8	WSA-9119	WesternSeed	7.4	1.8	0.53	D	K	G	T	T	T
9	G83xNC-62	NCStateUniv	7.6	1.9	0.57	D	K	K	K	T	T
10	PX147-10885	Seminis	6.7	2.0	0.38	D	C	G	T	T	T
11	General Lee	HarrisMoran	7.3	1.8	0.49	D	H	K	T	T	T
12	Ashley	Check	7.3	1.8	0.55	M	M	M	H	H	H
13	WSA-8119	WesternSeed	6.6	1.5	0.33	D	D	T	H	T	D
14	Panther	Nunhems	6.5	1.7	0.37	D	D	H	H	H	T
15	G57xNC-58	NCStateUniv	6.6	1.9	0.47	D	D	D	H	H	H
16	Cherokee 87	Check	6.7	1.9	0.51	M	D	M	D	M	T
17	G57xNC-63	NCStateUniv	6.0	1.8	0.35	H	D	D	T	H	H
18	G57xNC-59	NCStateUniv	6.5	1.9	0.51	D	M	M	H	D	D
CV (%)			6.1	10.3	13.99						
Mean			6.9	1.8	0.50						
LSD (5%)			0.7	0.3	0.12						

<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 31. Stage 4 summer slicer trial - sex expression and vine data (cultigens ranked by gynoecious rating).

Rank	Cultivar or line	Seed source	Gyn. rating <sup>z</sup>	Early yield (cwt/A)	Earli- ness (%) <sup>x</sup>	Vine size <sup>w</sup>	Vine color <sup>w</sup>
1	G57xNC-63	NCStateUniv	9	1	3	7	7
2	PX147-10885	Seminis	8	4	9	8	8
3	PX147-10896	Seminis	8	19	33	8	7
4	G57xNC-59	NCStateUniv	8	6	14	7	6
5	G57xNC-58	NCStateUniv	8	2	18	5	7
6	WSA-8119	WesternSeed	7	2	4	8	8
7	G83xNC-62	NCStateUniv	7	20	39	7	6
8	Cherokee 87	Check	6	3	4	6	7
9	G83xNC-63	NCStateUniv	6	8	13	6	6
10	NC-Sunshine	NCStateUniv	6	21	32	5	5
11	Dasher II	Seminis	6	3	7	8	7
12	Panther	Nunhems	6	1	3	6	8
13	General Lee	HarrisMoran	5	3	6	8	8
14	G83xNC-59	NCStateUniv	5	6	3	7	5
15	G83xNC-58	NCStateUniv	5	9	10	7	6
16	NC-Stratford	NCStateUniv	5	6	15	6	5
17	WSA-9119	WesternSeed	5	4	5	7	8
18	Ashley	Check	4	0	0	6	7
CV (%)			17	120	126	14	15
Mean			6	6	12	7	7
LSD (5%)			2	13	25	2	2

<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) = -0.32\*



Table 32. Stage 4 summer slicer trial - disease ratings (cultigens ranked by average disease resistance).<sup>z</sup>

Rank	Cultivar or line	Seed source	Downy mildew
1	G83xNC-63	NCStateUniv	1.0
2	WSA-8119	WesternSeed	1.3
3	Cherokee 87	Check	1.7
4	Dasher II	Seminis	1.7
5	Ashley	Check	1.7
6	G57xNC-63	NCStateUniv	2.0
7	Panther	Nunhems	2.0
8	WSA-9119	WesternSeed	2.0
9	PX147-10885	Seminis	2.7
10	General Lee	HarrisMoran	2.7
11	G83xNC-59	NCStateUniv	2.7
12	G83xNC-58	NCStateUniv	2.7
13	PX147-10896	Seminis	3.0
14	G83xNC-62	NCStateUniv	3.3
15	NC-Stratford	NCStateUniv	3.3
16	NC-Sunshine	NCStateUniv	5.0
17	G57xNC-59	NCStateUniv	6.0
18	G57xNC-58	NCStateUniv	7.0
	CV (%)		38.9
	Mean		2.9
	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) = -0.17<sup>ns</sup>

Table 33. Stage 4 summer slicer trial - selection indexes (cultigens ranked by SWI1).<sup>z</sup>

Rank	Cultivar or line	Seed source	Simple weighted indexes		Average rank indexes	
			SWI1	SWI2	ARI1	ARI2
1	G83xNC-59	NCStateUniv	4.4	4.0	7.8	7.7
2	PX147-10896	Seminis	4.4	4.2	5.9	6.1
3	G83xNC-63	NCStateUniv	4.2	3.9	6.5	6.2
4	G83xNC-62	NCStateUniv	4.0	4.0	7.9	7.7
5	G83xNC-58	NCStateUniv	4.0	3.7	7.7	8.2
6	WSA-9119	WesternSeed	4.0	3.6	8.3	8.6
7	Dasher II	Seminis	3.9	3.5	7.1	7.3
8	General Lee	HarrisMoran	3.7	3.4	9.6	9.1
9	NC-Sunshine	NCStateUniv	3.7	3.6	8.8	9.0
10	PX147-10885	Seminis	3.6	3.3	9.2	9.4
11	WSA-8119	WesternSeed	3.6	3.2	9.6	9.8
12	NC-Stratford	NCStateUniv	3.6	3.4	7.9	8.2
13	Cherokee 87	Check	3.6	3.2	10.6	9.8
14	Ashley	Check	3.4	3.0	11.0	11.2
15	Panther	Nunhems	3.4	3.0	11.1	11.0
16	G57xNC-63	NCStateUniv	3.1	2.7	12.8	12.4
17	G57xNC-58	NCStateUniv	2.4	2.4	14.1	14.4
18	G57xNC-59	NCStateUniv	2.4	2.3	15.3	14.9
	CV (%)		12.4	13.8	21.8	22.5
	Mean		3.6	3.3	9.5	9.5
	LSD (5%)		0.7	0.8	3.4	3.5

<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) = 0.81\*\*

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