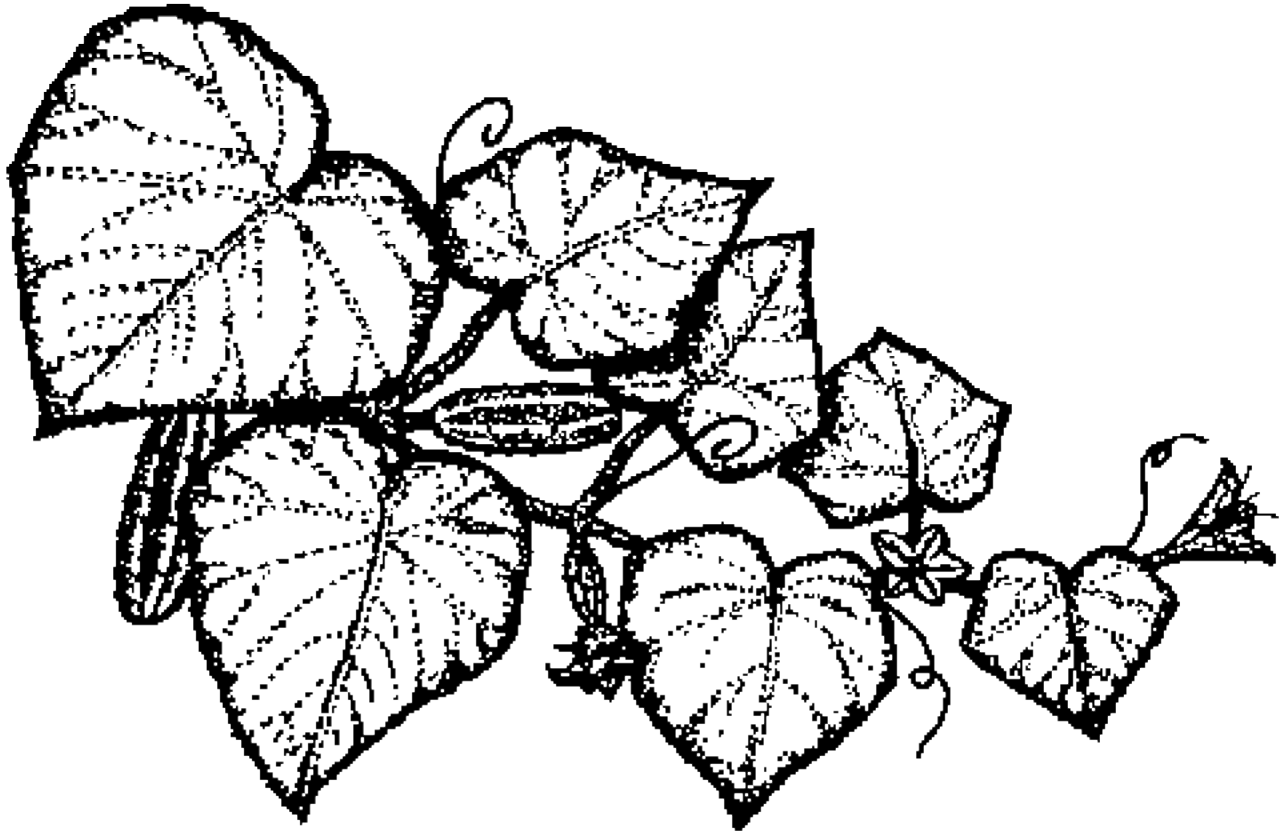


\$25.00

# NC State Cucumber Trials 2012



**Todd C. Wehner**  
Professor

**Tammy L. Ellington**  
Research Specialist

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

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:

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. The report is no longer printed, and is available on the web.

Please direct correspondence to:

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

## Contents

Trial	Page
<hr/>	
<b>Pickling Cucumber Trials</b>	
Brinestock Evaluation.....	4
Stage 1 Pickling Cucumber Trial (Preliminary).....	7
Stage 2 Pickling Cucumber Trial (Observational).....	7
Stage 3 Pickling Cucumber Trial (Replicated Spring).....	7
Stage 4 Pickling Cucumber Trial (Replicated Summer).....	7
Once-over Harvest Trial (Simulated Machine-Pick).....	12
<b>Slicing Cucumber Trials</b>	
Stage 1 Slicing Cucumber Trial (Preliminary).....	15
Stage 2 Slicing Cucumber Trial (Observational).....	15
Stage 3 Slicing Cucumber Trial (Replicated Spring).....	15
Stage 4 Slicing Cucumber Trial (Replicated Summer).....	15
<hr/>	

# Pickling Cucumbers

## Brinestock Evaluation

### Spring (Stage 3) Pickle Trial

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

Department of Horticultural Science  
North Carolina State University

#### Introduction

Cucumbers from harvests 1, 3 and 5 of the stage 3 spring pickling cucumber trial were each placed in 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 and Bob Quinn (Mt. Olive), Curtiss Cates (Addis Cates Co.), Steve Apol (Toisnot), 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 EGP-410, Feisty, Johnston and EGP-427.
- Most cultigens were bloater resistant; several were susceptible: Wis.SMR 18, Lafayette and EGP-427.
- 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).

---

<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	7.2	6.9	6.9	7.3	7.4	7.3
2	Feisty(9464)	HM-Clause	6.2	5.8	6.3	5.6	6.5	6.9
3	Johnston	NCState Univ	6.2	5.9	6.8	5.7	5.8	6.6
4	EGP-427	EmeraldSeeds	6.0	6.4	6.7	5.1	5.1	6.7
5	Vlaspik	Mon-Seminis	5.9	5.6	6.4	5.3	5.7	6.3
6	Lafayette	BayerNunhems	5.8	5.6	6.9	4.8	5.2	6.5
7	Exp.80-004	Bejo Seeds	5.7	6.4	6.6	3.9	3.9	7.5
8	Wis.SMR 18	Univ. Wis.	5.2	5.8	5.2	4.4	4.9	5.9
	Mean		6.0	6.0	6.5	5.3	5.6	6.7
	LSD (5%)		0.5	0.8	0.7	0.9	0.9	0.8

<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) = 0.56\*\*  
 Correlation (Texture with Seedcell) = 0.92\*\*

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	Johnston	NCState Univ	3	0	2	2
2	Feisty(9464)	HM-Clause	3	2	0	2
3	EGP-410	EmeraldSeeds	8	5	0	3
4	Exp.80-004	Bejo Seeds	7	7	0	0
5	Vlaspik	Mon-Seminis	8	7	0	2
6	Wis.SMR 18	Univ. Wis.	9	9	0	0
7	Lafayette	BayerNunhems	15	10	0	5
8	EGP-427	EmeraldSeeds	11	11	0	0
	Mean		8	6	0	2
	LSD (5%)		13	11	2	5

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	EGP-410	EmeraldSeeds	0	0	0	0
2	EGP-427	EmeraldSeeds	7	0	0	7
3	Vlaspik	Mon-Seminis	8	0	0	8
4	Lafayette	BayerNunhems	10	0	0	10
5	Wis.SMR 18	Univ. Wis.	11	0	0	11
6	Johnston	NCState Univ	13	0	0	13
7	Feisty(9464)	HM-Clause	13	0	0	13
8	Exp.80-004	Bejo Seeds	22	0	0	22
	Mean		11	0	0	11
	LSD (5%)		12	0	0	12

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	EGP-410	EmeraldSeeds	20.1	7.3	8	8	5	0
2	Vlaspik	Mon-Seminis	19.1	5.3	17	8	7	8
3	Johnston	NCState Univ	17.8	5.7	17	3	0	13
4	Lafayette	BayerNunhems	17.8	4.8	25	15	10	10
5	Wis.SMR 18	Univ. Wis.	17.6	4.4	20	9	9	11
6	Feisty(9464)	HM-Clause	17.3	5.6	17	3	2	13
7	EGP-427	EmeraldSeeds	16.6	5.1	17	11	11	7
8	Exp.80-004	Bejo Seeds	15.2	3.9	28	7	7	22
	Mean		17.7	5.3	19	8	6	11
	LSD (5%)		2.9	0.9	15	13	11	12

<sup>2</sup> Firmness determined by punch-testing (Magness-Taylor) 10 grade 2B fruits.  
 Correlation of Texture with: Firmness = 0.30ns, Balloon = -0.18ns  
 Correlation of Texture with: Honeycomb = 0.15ns, Soft centers = -0.54\*\*

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	Uniform- ity
1	Apol	7.7	8.0	8.0	6.3	8.0	8.0
2	Cates	6.6	6.8	6.8	6.9	6.0	6.6
3	Denlinger	6.1	6.0	7.3	5.0	5.6	6.7
4	Ware	4.9	4.6	5.0	4.6	4.8	5.2
5	Quinn	4.8	4.8	5.3	3.6	3.3	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 2012

The stage 1 pickle trial was not run this year.

## Observational (Stage 2) Pickling Cucumber Trial 2012

The stage 2 pickle trial was not run this year.

## Summer (Stage 4) Pickling Cucumber Trial 2012

The stage 4 pickle trial was not run this year.

## Spring (Stage 3) Pickling Cucumber Trial 2012

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 3 May, and harvested 6 times (Mondays and Thursdays) between 18 June and 5 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	EGP-427	EmeraldSeeds
2	Vlaspik	Mon-Seminis
3	Lafayette	BayerNunhems
4	Exp.80-004	Bejo Seeds

Table 6. Stage 3 spring pickle trial - yield data (cultigens are ranked by fruit value).

Rank	Cultivar or line	Seed source	Value (\$)	Weight (cwt)	Fruit grade distribution (% by weight)					Plants per A (x1000)
					Cull	No.1	No.2	No.3	No.4	
1	EGP-427	EmeraldSeeds	3730	592	13	3	10	59	15	30
2	Vlaspik	Mon-Seminis	3440	484	14	6	17	54	9	30
3	Exp.80-004	Bejo Seeds	3416	397	5	5	27	60	2	30
4	Lafayette	BayerNunhems	3308	474	11	5	19	50	14	30
5	Feisty(9464)	HM-Clause	3153	468	14	5	18	50	13	30
6	EGP-410	EmeraldSeeds	3083	441	8	4	17	58	13	29
7	Johnston	NCState Univ	2575	339	8	7	19	54	12	27
8	Wis.SMR 18	Univ. Wis.	1870	390	10	3	11	39	37	26
	Mean		2688	390	10	5	18	52	15	25
	LSD (5%)		697	96	4	3	7	11	9	7

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

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>2</sup> (8 harvests) for harvest:									
			1		1-2		1-3		1-4		1-5	
			\$/A	%	\$/A	%	\$/A	%	\$/A	%	\$/A	%
1	EGP-427	EmeraldSeeds	1556	42	1948	52	2806	75	3021	81	3526	95
2	Vlaspik	Mon-Seminis	1351	39	1849	53	2461	71	2737	79	3232	94
3	Lafayette	BayerNunhems	1173	35	1705	51	2556	77	2715	82	3055	92
4	Exp.80-004	Bejo Seeds	1174	34	1444	42	2356	69	2599	76	3184	93
5	EGP-410	EmeraldSeeds	965	30	1397	44	2094	67	2303	74	2873	93
6	Feisty(9464)	HM-Clause	879	27	1389	43	2141	67	2370	74	2911	92
7	Johnston	NCState Univ	737	25	1046	35	1658	59	1857	67	2342	89
8	Wis.SMR 18	Univ. Wis.	326	18	731	39	1122	60	1350	72	1696	91
	Mean		821	25	1184	39	1800	62	2003	70	2473	91
	LSD (5%)		543	14	551	13	655	14	684	14	725	8

Correlation (Fruit value with value in harvests 1 and 2) = 0.91\*\*



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 impression <sup>z</sup>
1	EGP-410	EmeraldSeeds	7.6	8.0	7.0	6.7	8.0
2	Exp.80-004	Bejo Seeds	7.4	8.0	6.7	6.3	8.0
3	Johnston	NCState Univ	7.0	7.0	7.3	6.7	7.3
4	Feisty(9464)	HM-Clause	6.8	7.0	8.0	6.0	7.3
5	EGP-427	EmeraldSeeds	6.8	7.3	7.3	5.7	7.3
6	Vlaspik	Mon-Seminis	6.6	7.7	7.0	5.0	7.0
7	Lafayette	BayerNunhems	6.4	6.7	7.7	6.0	6.7
8	Wis.SMR 18	Univ. Wis.	5.0	6.3	3.7	3.7	5.0
	Mean		6.7	7.3	6.7	5.7	7.1
	LSD (5%)		1.3	1.5	1.4	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) = 0.23<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 <sup>o</sup>			Defects2 <sup>o</sup>		
					2	4	6	2	4	6
1	EGP-410	EmeraldSeeds	21	3.1	K	K	K	K	T	T
2	Lafayette	BayerNunhems	18	3.4	G	T	T	T	K	G
3	Feisty(9464)	HM-Clause	18	3.5	K	K	T	G	G	G
4	Exp.80-004	Bejo Seeds	17	3.2	A	A	A	H	K	K
5	Wis.SMR 18	Univ. Wis.	17	3.0	W	Y	Y	Y	W	W
6	Johnston	NCState Univ	17	3.5	K	Y	K	G	K	G
7	Vlaspik	Mon-Seminis	17	3.4	K	K	T	T	G	D
8	EGP-427	EmeraldSeeds	16	3.1	K	K	K	K	G	T
	Mean		18	3.2						
	LSD (5%)		3	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)	

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	Feisty(9464)	HM-Clause	9	8	7
2	Lafayette	BayerNunhems	9	7	8
3	Exp.80-004	Bejo Seeds	9	7	8
4	Johnston	NCState Univ	8	5	7
5	EGP-427	EmeraldSeeds	8	7	7
6	EGP-410	EmeraldSeeds	8	7	6
7	Vlaspik	Mon-Seminis	8	8	6
8	Wis.SMR 18	Univ. Wis.	2	8	5
	Mean		8	7	7
	LSD (5%)		1	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) = 0.19ns; (Yield w/ vine size) = 0.47\*\*

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	Lafayette	BayerNunhems	3.0
2	Feisty(9464)	HM-Clause	4.7
3	Johnston	NCState Univ	4.7
4	EGP-410	EmeraldSeeds	4.7
5	EGP-427	EmeraldSeeds	5.0
6	Exp.80-004	Bejo Seeds	5.7
7	Vlaspik	Mon-Seminis	6.0
8	Wis.SMR 18	Univ. Wis.	8.3
	Mean		5.0
	LSD (5%)		1.6

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

Correlation (Yield vs. disease rating) = 0.14ns

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	EGP-427	EmeraldSeeds	15.4	11.7	4.1	4.2
2	Vlaspik	Mon-Seminis	14.5	10.8	5.3	5.3
3	Lafayette	BayerNunhems	14.2	10.8	4.8	4.2
4	Exp.80-004	Bejo Seeds	13.4	10.2	4.3	5.2
5	EGP-410	EmeraldSeeds	13.0	10.1	4.1	4.0
6	Feisty(9464)	HM-Clause	12.8	10.1	5.3	5.0
7	Johnston	NCState Univ	10.8	8.6	5.6	5.9
8	Wis.SMR 18	Univ. Wis.	7.5	6.4	9.0	8.2
	Mean		11.3	8.9	5.5	5.5
	LSD (5%)		2.7	1.8	2.0	1.7

<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) = 0.97\*\*      Correlation (Yield with ARI1) = -0.64\*\*

## Once-over Harvest Pickling Cucumber Trial 2012

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 double 10 ft. rows with 5 ft. alleys at each end.
3. Rows were on raised 18" beds spaced 30" 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 3 May, and harvested 1 time on June 25.

### 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) | HM-Clause    |
| 2 | Excursion    | Mon-Seminis  |
| 3 | Lafayette    | BayerNunhems |

Table 13. Once-over harvest pickle trial - yield data (cultigens are ranked by fruit yield).

Rank	Cultivar or line	Seed source	Weight (cwt)	Fruit grade distribution (% by weight)					Plants per A (x1000)
				Cull	No.1	No.2	No.3	No.4	
1	Excursion	Mon-Seminis	389	9	3	9	61	19	84
2	Feisty(9464)	HM-Clause	372	5	1	9	71	13	84
3	Vlaspik	Mon-Seminis	351	6	2	11	39	42	84
4	Lafayette	BayerNunhems	259	6	6	18	55	16	77
5	Wis.SMR 18	Univ. Wis.	265	6	3	16	59	17	77
	Mean		216	11	5	17	48	20	75
	LSD (5%)		130	13	6	16	27	36	15

All cultivars harvested on same day; Vlaspik should have been harvested earlier. Pickling melon data excluded.

Table 14. Once-over harvest pickle trial - fruit quality data (cultigens are ranked by average quality).

Rank	Cultivar or line	Seed source	Average				Seed- cell <sup>z</sup>	Overall impres- sion <sup>z</sup>
			quality <sup>z</sup>	Shape <sup>z</sup>	Color <sup>y</sup>			
1	Excursion	Mon-Seminis	7.4	8.0	7.7	6.3	8.0	
2	Feisty(9464)	HM-Clause	7.1	7.7	8.0	5.7	8.0	
3	Vlaspik	Mon-Seminis	6.7	7.3	7.3	5.3	7.3	
4	Lafayette	BayerNunhems	6.6	7.0	7.7	5.3	7.3	
5	Wis.SMR 18	Univ. Wis.	4.8	6.0	4.3	3.7	4.7	
	Mean		6.5	7.2	7.0	5.3	7.1	
	LSD (5%)		1.0	1.5	1.2	1.1	0.9	

<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 yield with average quality) = 0.29<sup>ns</sup>

Pickling melon data excluded.

Table 15. Once-over harvest pickle trial - other quality data (cultigens are ranked by firmness).<sup>z</sup>

Rank	Cultivar or line	Seed source	Firm- ness	L/D ratio	Defects1°			Defects2°		
					2	4	6	2	4	6
1	Wis.SMR 18	Univ. Wis.	16	3.0	W	W	W	T	Y	Y
2	Lafayette	BayerNunhems	15	3.1	K	K	K	T	T	T
3	Vlaspik	Mon-Seminis	14	3.0	K	K	K	H	K	T
4	Excursion	Mon-Seminis	14	3.0	K	K	K	K	T	T
5	Feisty(9464)	HM-Clause	14	3.1	K	K	K	K	T	K
	Mean		15	3.0						
	LSD (5%)		2	0.2						

<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)	

Pickling melon data excluded.

Table 16. Once-over harvest 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)	HM-Clause	7.5	7.2	2.9	3.3
2	Excursion	Mon-Seminis	7.4	7.1	2.6	3.1
3	Lafayette	BayerNunhems	6.3	5.9	4.1	4.1
4	Vlaspik	Mon-Seminis	5.9	5.8	3.8	3.9
5	Wis.SMR 18	Univ. Wis.	5.6	5.2	5.4	4.6
	Mean		6.2	5.9	4.7	4.7
	LSD (5%)		1.8	1.7	0.8	0.8

<sup>z</sup> SWI is simple weighted index calculated from the performance of a cultigen for yield; earliness; fruit shape, seedcell size and overall impression; and disease resistance. The index is calculated with 2 different methods of weighting each trait (10 is best, 1 is worst).

ARI is the average ranking of each cultigen for yield, earliness, fruit quality and disease resistance. The index is calculated with 2 different sets of secondary traits added in with the primary traits (1 is best).

Correlation (Yield with SWI1) = 0.84\*\* Correlation (Yield with ARI1) = -0.81\*\*  
Pickling melon data excluded.

# Slicing Cucumbers

## Preliminary (Stage 1) Slicing Cucumber Trial 2012

The stage 1 slicer trial was not run this year.

## Observational (Stage 2) Slicing Cucumber Trial 2012

The stage 2 slicer trial was not run this year.

## Summer (Stage 4) Slicing Cucumber Trial 2012

The stage 4 slicer trial was not run this year.

## Spring (Stage 3) Slicing Cucumber Trial 2012

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

### Data Collection

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

### Results

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

1	EGS-172	Emerald Seeds
2	General Lee	Clause-HM
3	Intimidator	Mon-Seminis
4	Dasher II	Mon-Seminis

Table 17. 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	EGS-172	Emerald Seeds	437	689	54	13	30
2	General Lee	Clause-HM	306	512	55	8	30
3	Dasher II	Mon-Seminis	296	476	58	7	30
4	Thunder	Mon-Seminis	264	445	52	12	30
5	AC-55 Gyn	Abbott&Cobb	256	407	54	15	30
6	Intimidator	Mon-Seminis	231	411	49	11	30
7	Stonewall	Clause-HM	184	330	49	11	28
8	EGS-174	Emerald Seeds	166	252	55	8	29
9	EGS-152	Emerald Seeds	80	146	48	15	17
	Mean		247	407	53	11	28
	LSD (5%)		190	254	15	5	4

Correlation (Marketable yield with % culls) = -0.15ns

Table 18. 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	EGS-172	Emerald Seeds	155	20	301	42	432	61	502	70	592	84
2	General Lee	Clause-HM	43	7	211	37	273	53	364	71	424	84
3	Intimidator	Mon-Seminis	61	15	174	44	215	53	287	72	352	87
4	Stonewall	Clause-HM	33	7	155	38	199	51	249	68	293	83
5	AC-55 Gyn	Abbott&Cobb	21	5	152	37	227	55	263	64	323	78
6	Thunder	Mon-Seminis	72	15	148	34	241	54	311	71	396	88
7	Dasher II	Mon-Seminis	27	6	145	30	240	50	293	62	372	78
8	EGS-174	Emerald Seeds	12	2	62	16	116	28	148	42	194	55
9	EGS-152	Emerald Seeds	1	0	29	15	61	32	78	47	118	79
	Mean		47	9	153	33	223	49	277	63	340	80
	LSD (5%)		103	11	141	22	188	32	226	30	252	31

Correlation (Marketable yield with yield in harvests 1-2) = 0.87\*\*

Correlation (Marketable yield with % of yield in harvests 1-2) = 0.64\*\*



Table 19. 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 impression	Overall impression
1	EGS-174	Emerald Seeds	7.7	8	8	7	8
2	Dasher II	Mon-Seminis	7.6	8	8	7	8
3	EGS-152	Emerald Seeds	7.6	8	8	7	8
4	EGS-172	Emerald Seeds	7.3	8	9	7	8
5	Thunder	Mon-Seminis	7.2	8	8	6	8
6	Intimidator	Mon-Seminis	7.1	7	8	7	7
7	Stonewall	Clause-HM	7.0	7	7	7	7
8	General Lee	Clause-HM	6.9	7	7	7	7
9	AC-55 Gyn	Abbott&Cobb	6.5	7	7	6	7
	Mean		7.2	7	8	7	7
	LSD (5%)		0.8	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) = -0.07<sup>ns</sup>

Table 20. 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.)	Defect 1°			Defect 2°		
						2	4	6	2	4	6
1	EGS-174	Emerald Seeds	8.8	2.1	0.92	K	K	K	T	T	G
2	Dasher II	Mon-Seminis	8.5	2.2	0.92	K	K	K	K	K	T
3	EGS-152	Emerald Seeds	9.2	2.2	0.93	K	T	K	T	K	T
4	EGS-172	Emerald Seeds	9.8	2.2	0.93	G	K	T	T	G	K
5	Thunder	Mon-Seminis	8.6	2.2	0.90	K	K	H	G	T	T
6	Intimidator	Mon-Seminis	8.6	2.2	0.87	H	K	K	T	H	H
7	Stonewall	Clause-HM	9.0	2.1	0.90	D	D	D	T	T	T
8	General Lee	Clause-HM	8.5	2.1	0.84	M	H	K	H	T	T
9	AC-55 Gyn	Abbott&Cobb	9.1	2.2	0.92	T	T	G	G	G	M
	Mean		8.9	2.2	0.90						
	LSD (5%)		0.7	0.1	0.13						

<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 21. 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)	Earliness (%) <sup>x</sup>	Vine size <sup>w</sup>	Vine color <sup>w</sup>
1	Stonewall	Clause-HM	9	155	38	7	7
2	Dasher II	Mon-Seminis	8	145	30	7	7
3	Intimidator	Mon-Seminis	8	174	44	7	8
4	General Lee	Clause-HM	8	211	37	6	8
5	EGS-174	Emerald Seeds	8	62	16	4	8
6	EGS-172	Emerald Seeds	8	301	42	8	8
7	Thunder	Mon-Seminis	8	148	34	8	7
8	AC-55 Gyn	Abbott&Cobb	8	152	37	7	7
9	EGS-152	Emerald Seeds	6	29	15	5	7
	Mean		8	153	33	6	7
	LSD (5%)		1	141	22	2	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) = 0.26ns

Table 22. 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	EGS-152	Emerald Seeds	2.3
2	Stonewall	Clause-HM	4.0
3	Intimidator	Mon-Seminis	4.7
4	EGS-174	Emerald Seeds	4.7
5	Thunder	Mon-Seminis	4.7
6	General Lee	Clause-HM	5.0
7	EGS-172	Emerald Seeds	5.3
8	Dasher II	Mon-Seminis	5.7
9	AC-55 Gyn	Abbott&Cobb	6.7
	Mean		4.8
	LSD (5%)		3.3

<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 (Marketable yield with disease rating) = 0.66\*\*

Table 23. 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	EGS-172	Emerald Seeds	6.6	6.8	3.7	3.5
2	General Lee	Clause-HM	5.7	6.0	4.8	4.6
3	Intimidator	Mon-Seminis	5.4	5.8	4.6	4.5
4	Dasher II	Mon-Seminis	5.4	5.6	4.5	4.9
5	Thunder	Mon-Seminis	5.3	5.7	5.3	5.3
6	Stonewall	Clause-HM	5.0	5.4	5.6	5.3
7	EGS-174	Emerald Seeds	4.7	4.9	5.1	5.6
8	EGS-152	Emerald Seeds	4.7	4.9	5.0	5.3
9	AC-55 Gyn	Abbott&Cobb	4.6	5.0	6.4	6.2
	Mean		5.3	5.6	5.0	5.0
	LSD (5%)		0.9	0.9	1.6	1.4

<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) = 0.85\*\*  
 Correlation (Marketable yield with ARI1) = -0.30ns