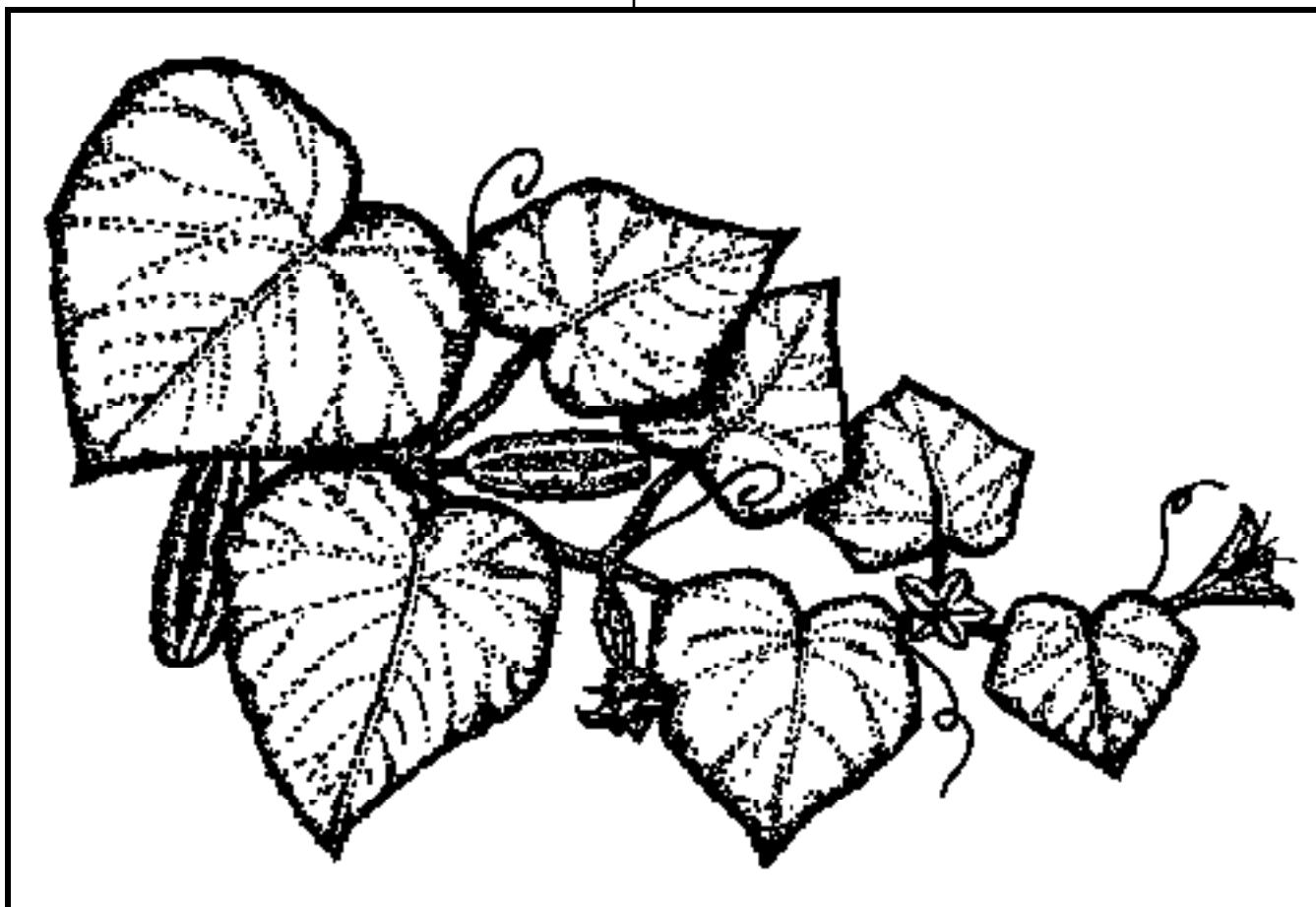


\$3.00

NC State Cucumber Trials Summary 1999



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The authors gratefully acknowledge the assistance of Jimmy Prince and the personnel at the Horticultural Crops Research Station, Clinton, NC for help in planting maintaining, and harvesting the trials, and to Marie Hall for assembling this report.

About This Report

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

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

Pricing schemes

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

Grade	Spring \$/cwt	Summer \$/cwt
No.1 (< 1 1/16")	\$18.30	\$18.30
No.2 (1 1/16 - 1 1/2")	9.55	9.55
No.3 (1 1/2 - 2")	6.45	6.45
No.4 (> 2")	0.00	0.00

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

Progression of breeding lines through trials:

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

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

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Pickling Cucumbers

Brinestock Evaluation - 1999

Spring (Stage 3) Pickle Trial

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Introduction

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

Methods

The cultigens (cultivars and breeding lines) were evaluated for fruit quality (shape, external color, texture, seedcell size, and lot uniformity), firmness, bloaters, and other defects in October. Quality was evaluated by judges from industry: Phil Denlinger, Sonny Coghill, Lawrence Crocker, Bob Quinn, and Tim Smith (Mt. Olive), Eddie Quill, Harry Newsome, and Jeanine Suggs (Dean Foods), Curtiss Cates and John Cates (Addis Cates Co.), Chris Joyner (Bone Farms), and Richard Wojciak (Sunseeds).

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

Results

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

Summary

- The cultigens with best fruit quality in brinestock were UW 99 R, Vlasstar, Johnston, Clinton, Patton, UW 99 78, WI6856Ax6760B, UW 99 T, and Calypso.
- The most bloater resistant (free of balloon and lens bloating) cultigens were UW 99 69, UW 99 T, UW 99 78, Cross Country, Vlaspiik, Johnston, Gy 14, UW 99 R, WI6884Ax6812A.
- 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 Denlinger, who was the most liberal in quality ratings to Suggs, who was the most conservative. Analysis of variance indicated significant differences among judges for the way they rated fruit quality. However, interaction of judge with cultigen was non-significant (all judges gave good cultigens high ratings, and bad cultigens low ratings).

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

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

Rank	Cultivar or line	Seed source	Average quality	Shape	Extrnal color	Text- ure	Seed cell	Uniform- ity
1	UW 99 R	Univ. Wis.	6.3	6.5	6.5	6.1	6.0	6.4
2	Vlasstar(10489)	Seminis	6.2	6.3	6.6	5.9	5.7	6.8
3	Johnston	NCStateUniv	6.2	6.6	6.1	5.6	6.2	6.6
4	Clinton	NCStateUniv	6.2	5.8	6.3	5.6	6.4	6.8
5	Patton (3528)	Sunseeds	6.1	6.4	6.6	5.9	5.4	6.3
6	UW 99 78	Univ. Wis.	6.1	6.0	6.5	6.2	5.6	6.3
7	WI6856Ax6760B	Wis-USDA	6.1	6.1	5.9	5.9	6.2	6.3
8	UW 99 T	Univ. Wis.	6.0	6.3	6.2	6.0	5.3	6.3
9	Calypso	NCStateUniv	6.0	6.0	6.0	6.4	5.0	6.5
10	XP-1904	Seminis	5.9	6.3	6.5	5.4	5.3	5.9
11	Lafayette	Sunseeds	5.9	5.6	6.3	5.5	5.8	6.1
12	UW 99 69	Univ. Wis.	5.8	5.8	6.7	5.8	4.6	6.2
13	XP-1901	Seminis	5.8	6.1	6.3	5.1	5.7	5.9
14	WI6884Ax6849A	Wis-USDA	5.8	5.8	5.5	6.1	5.8	5.7
15	HMX-8460	HarrisMoran	5.8	5.6	5.6	5.5	5.9	6.2
16	Napoleon(3502)	Sunseeds	5.7	6.1	6.3	5.0	5.3	6.1
17	XP-1914	Seminis	5.7	5.5	6.8	5.3	4.9	6.0
18	WI6884Ax6812A	Wis-USDA	5.7	5.7	5.8	5.8	5.1	6.0
19	HMX-8461	HarrisMoran	5.7	5.6	5.1	5.8	5.7	6.2
20	WI6842Ax6760B	Wis-USDA	5.6	5.4	5.9	5.4	5.3	6.0
21	Vlaspik	Seminis	5.6	5.0	6.4	5.3	5.7	5.5
22	UW 99 V	Univ. Wis.	5.6	6.0	5.7	5.2	4.8	6.2
23	Jackson(3540)	Sunseeds	5.6	5.5	6.3	5.1	5.3	5.7
24	Royal	HarrisMoran	5.6	5.3	6.6	5.6	4.8	5.5
25	CrossCountry4318	HarrisMoran	5.5	4.9	5.5	5.6	5.6	5.9
26	EX-1913	Seminis	5.5	5.8	5.8	5.0	5.2	5.6
27	Regal	HarrisMoran	5.5	4.9	5.8	5.7	5.1	5.8
28	Raleigh	NCStateUniv	5.5	5.4	6.2	5.0	4.7	6.0
29	XVC-5834	Seminis	5.5	4.8	6.5	5.1	4.5	6.4
30	Manteo	NCStateUniv	5.4	5.0	7.2	5.4	4.1	5.5
31	EX-1911	Seminis	5.4	5.5	6.2	4.8	5.0	5.4
32	Discover(1550)	Seminis	5.4	5.1	5.7	5.2	4.9	6.0
33	SRQP-1882	Sunseeds	5.4	5.4	6.3	4.8	4.8	5.6
34	Gy 14	ClemsonUniv	5.1	4.7	4.3	5.4	5.1	5.9
35	Wis.SMR 18	Univ. Wis.	4.8	4.3	4.8	4.8	5.0	5.1
	LSD (5%)		0.4	0.7	0.6	0.8	0.7	0.7
	Mean		5.7	5.6	6.0	5.4	5.3	6.0
	CV (%)		13	23	16	25	25	19

^z 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) = 0.71**

Correlation (Texture with Seedcell) = 0.66**

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	UW 99 69	Univ. Wis.	2	0	0	2
2	UW 99 T	Univ. Wis.	3	0	0	3
3	UW 99 78	Univ. Wis.	5	3	0	2
4	CrossCountry4318	HarrisMoran	6	4	0	2
5	Vlaspik	Seminis	7	4	0	3
6	Johnston	NCStateUniv	7	5	2	0
7	Gy 14	ClemsonUniv	8	3	2	4
8	UW 99 R	Univ. Wis.	8	5	0	3
9	WI6884Ax6812A	Wis-USDA	8	5	0	3
10	Raleigh	NCStateUniv	9	4	2	3
11	Vlasstar(10489)	Seminis	9	4	2	3
12	UW 99 V	Univ. Wis.	9	6	0	3
13	HMX-8461	HarrisMoran	10	3	5	2
14	Patton (3528)	Sunseeds	10	4	3	3
15	XVC-5834	Seminis	10	4	2	4
16	Regal	HarrisMoran	11	4	3	4
17	SRQP-1882	Sunseeds	11	6	3	2
18	Royal	HarrisMoran	11	8	0	3
19	Manteo	NCStateUniv	12	3	6	3
20	Calypso	NCStateUniv	13	3	0	10
21	WI6884Ax6849A	Wis-USDA	14	5	1	8
22	Lafayette	Sunseeds	14	8	5	2
23	WI6856Ax6760B	Wis-USDA	14	10	2	2
24	Clinton	NCStateUniv	15	13	0	3
25	Wis.SMR 18	Univ. Wis.	17	13	0	4
26	HMX-8460	HarrisMoran	18	10	5	3
27	Discover(1550)	Seminis	20	14	4	2
28	Napoleon(3502)	Sunseeds	23	15	4	4
29	Jackson(3540)	Sunseeds	23	16	5	2
30	XP-1914	Seminis	27	21	3	3
31	EX-1911	Seminis	35	28	3	5
32	XP-1904	Seminis	38	30	8	0
33	WI6842Ax6760B	Wis-USDA	38	35	3	0
34	EX-1913	Seminis	41	37	0	4
35	XP-1901	Seminis	68	38	20	10
LSD (5%)			37	29	10	6
Mean			16	11	3	3
CV (%)			112	135	203	101

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	Gy 14	ClemsonUniv	0	0	0	0
2	HMX-8460	HarrisMoran	1	0	0	1
3	SRQP-1882	Sunseeds	2	0	0	2
4	Vlasstar(10489)	Seminis	2	0	1	1
5	HMX-8461	HarrisMoran	2	1	0	1
6	WI6884Ax6849A	Wis-USDA	2	0	0	2
7	WI6856Ax6760B	Wis-USDA	2	1	0	1
8	Napoleon(3502)	Sunseeds	3	0	0	3
9	CrossCountry4318	HarrisMoran	3	3	0	0
10	UW 99 V	Univ. Wis.	3	0	2	2
11	Raleigh	NCStateUniv	4	0	0	4
12	UW 99 69	Univ. Wis.	4	0	0	4
13	EX-1911	Seminis	5	0	2	3
14	WI6842Ax6760B	Wis-USDA	5	0	2	3
15	EX-1913	Seminis	5	2	2	1
16	UW 99 78	Univ. Wis.	5	4	2	0
17	Johnston	NCStateUniv	5	5	0	0
18	WI6884Ax6812A	Wis-USDA	5	1	0	4
19	Patton (3528)	Sunseeds	6	0	3	3
20	Regal	HarrisMoran	6	0	0	6
21	Calypso	NCStateUniv	6	2	0	4
22	Clinton	NCStateUniv	6	4	2	0
23	Discover(1550)	Seminis	6	0	0	6
24	UW 99 R	Univ. Wis.	6	0	5	2
25	XVC-5834	Seminis	6	0	2	4
26	XP-1914	Seminis	7	0	6	1
27	Vlaspik	Seminis	7	2	4	2
28	Lafayette	Sunseeds	7	1	3	3
29	Jackson(3540)	Sunseeds	7	0	2	6
30	UW 99 T	Univ. Wis.	8	2	1	5
31	Manteo	NCStateUniv	8	2	2	5
32	Wis.SMR 18	Univ. Wis.	9	4	4	1
33	XP-1904	Seminis	13	3	3	8
34	Royal	HarrisMoran	15	4	3	8
35	XP-1901	Seminis	20	0	0	20
	LSD (5%)		13	4	4	11
	Mean		6	1	1	3
	CV (%)		118	197	152	173

Table 4. Brinestock evaluation - firmness and texture of fruit, and resistance to bloaters and defects (cultigens are ranked by firmness).^z

Rank	Cultivar or line	Seed source	Firm- ness (lb.)	Text- ure	Total bloaters & defects	Total bloaters	Bal- loon	Defects
1	Clinton	NCStateUniv	17.4	5.6	21	15	13	6
2	HMX-8461	HarrisMoran	17.3	5.8	12	10	3	2
3	WI6884Ax6849A	Wis-USDA	16.6	6.1	16	14	5	2
4	UW 99 R	Univ. Wis.	16.3	6.1	14	8	5	6
5	Johnston	NCStateUniv	16.2	5.6	12	7	5	5
6	Calypso	NCStateUniv	16.1	6.4	18	13	3	6
7	HMX-8460	HarrisMoran	16.0	5.5	18	18	10	1
8	UW 99 T	Univ. Wis.	15.9	6.0	11	3	0	8
9	Patton (3528)	Sunseeds	15.7	5.9	15	10	4	6
10	Regal	HarrisMoran	15.7	5.7	17	11	4	6
11	Vlasstar(10489)	Seminis	15.5	5.9	11	9	4	2
12	WI6842Ax6760B	Wis-USDA	15.5	5.4	42	38	35	5
13	WI6856Ax6760B	Wis-USDA	15.5	5.9	16	14	10	2
14	Vlaspik	Seminis	15.5	5.3	14	7	4	7
15	Wis.SMR 18	Univ. Wis.	15.4	4.8	26	17	13	9
16	XP-1914	Seminis	15.3	5.3	33	27	21	7
17	EX-1913	Seminis	15.3	5.0	45	41	37	5
18	Raleigh	NCStateUniv	15.3	5.0	12	9	4	4
19	XP-1901	Seminis	15.2	5.1	88	68	38	20
20	UW 99 78	Univ. Wis.	15.0	6.2	10	5	3	5
21	Discover(1550)	Seminis	15.0	5.2	26	20	14	6
22	Gy 14	ClemsonUniv	15.0	5.4	8	8	3	0
23	UW 99 V	Univ. Wis.	14.9	5.2	12	9	6	3
24	CrossCountry4318	HarrisMoran	14.7	5.6	9	6	4	3
25	EX-1911	Seminis	14.7	4.8	40	35	28	5
26	Lafayette	Sunseeds	14.5	5.5	21	14	8	7
27	Royal	HarrisMoran	14.4	5.6	26	11	8	15
28	XVC-5834	Seminis	14.1	5.1	16	10	4	6
29	Manteo	NCStateUniv	13.9	5.4	20	12	3	8
30	WI6884Ax6812A	Wis-USDA	13.7	5.8	13	8	5	5
31	UW 99 69	Univ. Wis.	13.5	5.8	6	2	0	4
32	SRQP-1882	Sunseeds	13.5	4.8	12	11	6	2
33	XP-1904	Seminis	12.9	5.4	50	38	30	13
34	Jackson(3540)	Sunseeds	12.5	5.1	30	23	16	7
35	Napoleon(3502)	Sunseeds	12.0	5.0	26	23	15	3
LSD (5%)			1.7	0.8	46	37	29	13
Mean			15.0	5.4	22	16	11	6
CV (%)			5.6	25.4	104	112	135	118

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

Correlation of Texture with: Firmness = 0.24*, Balloon = -0.65**

Correlation of Texture with: Lens = -0.56**, Honeycomb = -0.31**

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

Rank	Judge	Average quality	Shape	External color	Texture	Seed cell	Uniformity
1	Denlinger	7.0	7.0	6.7	7.1	6.9	7.2
2	Crocker	6.8	6.4	7.5	5.7	7.0	7.2
3	Quill	6.6	6.6	7.5	5.5	6.4	6.8
4	Joyner	6.3	6.4	6.6	6.1	6.3	6.2
5	Quinn	6.3	6.0	6.2	6.6	5.5	7.2
6	Coghill	5.9	5.9	6.2	5.6	5.6	5.9
7	Smith	5.8	5.4	5.9	6.1	5.1	6.5
8	CCates	5.3	5.8	5.5	5.0	4.7	5.6
9	JCates	5.0	4.8	5.1	4.8	5.1	5.3
10	Wojciak	4.8	4.9	4.9	4.6	4.5	5.0
11	Newsome	4.4	4.3	5.1	4.4	2.9	5.1
12	Suggs	4.4	4.0	5.6	4.2	3.8	4.1

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

**Preliminary (Stage 1) Pickling Cucumber Trial
1999**

The stage 1 pickle trial was not run this year.

**Observational (Stage 2) Pickling Cucumber Trial
1999**

The stage 2 pickle trial was not run this year.

**Spring (Stage 3) Pickling Cucumber Trial
1999**

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 21 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	Vlaspik	Seminis
2	Johnston	NCStateUniv
3	WI6884Ax6812A	Wis-USDA
4	UW 99 69	Univ. Wis.
5	UW 99 R	Univ. Wis.
6	UW 99 V	Univ. Wis.
7	XVC-5834	Seminis
8	XP-1901	Seminis

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

Rank	Cultivar or line	Seed source	Value (\$)	Weight (cwt)	Fruit grade distribution (% by weight)				Plants per A (x1000)	
					Cull	No.1	No.2	No.3		No.4
1	Vlaspik	Seminis	3237	479	19	11	27	34	10	26
2	WI6884Ax6812A	Wis-USDA	3216	495	16	10	24	38	13	26
3	Johnston	NCStateUniv	3004	489	17	7	22	42	12	26
4	UW 99 V	Univ. Wis.	2858	490	13	7	22	39	19	26
5	UW 99 R	Univ. Wis.	2840	494	15	8	20	37	20	26
6	UW 99 69	Univ. Wis.	2807	452	13	9	24	36	18	26
7	XVC-5834	Seminis	2769	431	21	10	26	33	10	22
8	Regal	HarrisMoran	2660	477	21	10	17	33	18	26
9	UW 99 T	Univ. Wis.	2629	455	19	10	23	30	19	25
10	Royal	HarrisMoran	2619	426	18	9	22	38	13	26
11	XP-1904	Seminis	2600	398	13	9	25	38	15	26
12	Vlasstar(10489)	Seminis	2520	411	14	10	21	38	18	25
13	XP-1901	Seminis	2516	407	15	9	21	40	15	26
14	WI6884Ax6849A	Wis-USDA	2513	461	18	9	21	29	23	25
15	WI6842Ax6760B	Wis-USDA	2491	444	16	8	19	36	21	26
16	CrossCountry4318	HarrisMoran	2468	438	17	8	19	36	20	24
17	SRQP-1882	Sunseeds	2408	415	22	9	20	34	15	26
18	UW 99 78	Univ. Wis.	2392	428	15	8	17	38	21	26
19	Lafayette	Sunseeds	2382	407	17	9	21	35	19	26
20	Raleigh	NCStateUniv	2345	400	15	9	21	36	19	25
21	EX-1913	Seminis	2344	364	21	9	26	33	10	26
22	EX-1911	Seminis	2316	376	26	11	25	29	8	26
23	Gy 14	ClemsonUniv	2312	421	12	8	15	39	26	23
24	Jackson(3540)	Sunseeds	2289	380	18	7	23	41	11	26
25	WI6856Ax6760B	Wis-USDA	2204	365	13	10	22	34	21	24
26	Patton (3528)	Sunseeds	2204	400	16	9	19	32	25	22
27	Discover(1550)	Seminis	2171	376	23	7	20	39	10	26
28	Napoleon(3502)	Sunseeds	2131	354	11	8	22	37	21	17
29	XP-1914	Seminis	1985	310	24	11	25	31	9	26
30	Calypso	NCStateUniv	1940	390	18	7	17	30	26	25
31	HMX-8460	HarrisMoran	1905	376	22	9	17	30	22	26
32	HMX-8461	HarrisMoran	1778	333	17	7	17	39	20	26
33	Clinton	NCStateUniv	1715	305	9	8	20	34	28	25
34	Manteo	NCStateUniv	1613	302	27	8	20	29	15	26
35	Wis.SMR 18	Univ. Wis.	1072	347	27	4	10	22	38	25
LSD (5%)			638	120	6	3	6	8	9	2
Mean			2379	408	17	9	20	35	18	25
CV (%)			16	18	20	22	17	14	30	6

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

Table 7. Stage 3 spring pickle trial - earliness data (cultigens are ranked by fruit value in harvests 1 and 2).

Cultivar Rank or line	Seed source	Cumulative fruit value and % of total value ^z (6 harvests) for harvest:									
		1		1-2		1-3		1-4		1-5	
		\$/A	%	\$/A	%	\$/A	%	\$/A	%	\$/A	%
1 Johnston	NCStateUniv	827	28	1130	38	2044	68	2282	76	2732	91
2 Vlaspik	Seminis	732	23	1110	34	2039	63	2335	72	2973	92
3 WI6884Ax6812A	Wis-USDA	675	21	1039	32	2101	65	2399	75	2972	93
4 XVC-5834	Seminis	638	23	987	36	1720	62	1971	71	2492	90
5 UW 99 R	Univ. Wis.	675	24	965	35	1862	66	2129	75	2621	92
6 UW 99 69	Univ. Wis.	634	22	958	34	1768	63	2026	72	2550	91
7 Royal	HarrisMoran	610	24	945	36	1702	65	1964	75	2361	90
8 EX-1913	Seminis	536	24	916	41	1582	69	1781	77	2176	93
9 UW 99 V	Univ. Wis.	700	24	905	31	1849	65	2113	74	2624	91
10 SRQP-1882	Sunseeds	536	22	887	37	1550	64	1716	71	2134	89
11 XP-1901	Seminis	602	24	871	34	1610	63	1850	73	2282	90
12 Discover(1550)	Seminis	576	27	858	40	1490	68	1696	78	2021	93
13 Regal	HarrisMoran	519	20	843	32	1569	59	1831	69	2242	84
14 Jackson(3540)	Sunseeds	593	26	826	36	1443	65	1658	74	2079	91
15 EX-1911	Seminis	441	19	819	36	1489	65	1780	77	2154	93
16 Vlasstar(10489)	Seminis	485	19	795	31	1515	60	1781	71	2262	90
17 Raleigh	NCStateUniv	495	21	788	34	1444	62	1691	72	2100	90
18 HMX-8461	HarrisMoran	604	34	788	44	1121	63	1270	71	1575	88
19 XP-1914	Seminis	447	21	755	37	1387	69	1540	77	1823	92
20 Lafayette	Sunseeds	450	19	740	31	1377	58	1641	69	2102	88
21 XP-1904	Seminis	427	16	735	28	1526	59	1858	72	2387	92
22 UW 99 T	Univ. Wis.	421	16	728	28	1556	59	1860	71	2335	89
23 WI6842Ax6760B	Wis-USDA	432	17	695	28	1387	56	1671	67	2139	86
24 UW 99 78	Univ. Wis.	520	21	689	28	1402	58	1678	70	2109	88
25 WI6884Ax6849A	Wis-USDA	415	16	678	27	1473	59	1767	70	2273	91
26 Gy 14	ClemsonUniv	411	19	672	31	1194	54	1343	61	1849	81
27 HMX-8460	HarrisMoran	500	27	630	34	1098	59	1356	72	1679	88
28 Calypso	NCStateUniv	458	24	625	32	1223	63	1432	74	1725	89
29 Manteo	NCStateUniv	397	26	558	35	1073	66	1225	75	1473	91
30 CrossCountry4318	HarrisMoran	370	15	536	22	1170	48	1548	63	2148	87
31 WI6856Ax6760B	Wis-USDA	262	12	502	22	1111	50	1389	63	1965	89
32 Patton (3528)	Sunseeds	236	11	449	20	991	45	1306	59	1933	88
33 Napoleon(3502)	Sunseeds	219	10	423	20	1027	48	1280	60	1870	88
34 Clinton	NCStateUniv	253	15	403	24	833	49	1040	61	1479	86
35 Wis.SMR 18	Univ. Wis.	206	18	333	30	637	60	712	67	928	87
LSD (5%)		285	11	325	12	446	12	479	11	576	6
Mean		494	21	759	32	1439	60	1683	71	2130	89
CV (%)		35	33	26	22	19	12	17	9	17	4

Correlation (Fruit value with value in harvests 1 and 2) = 0.68**

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

Rank	Cultivar or line	Seed source	Average quality ^z	Shape ^z	Color ^y	Seed- cell ^z	Overall impres- sion ^z
1	UW 99 69	Univ. Wis.	7.3	8	8	7	8
2	XP-1901	Seminis	7.1	7	6	6	8
3	Vlasstar(10489)	Seminis	7.1	8	8	6	7
4	EX-1913	Seminis	7.1	7	7	7	7
5	Clinton	NCStateUniv	7.0	8	7	7	6
6	Patton (3528)	Sunseeds	7.0	8	8	7	7
7	UW 99 R	Univ. Wis.	7.0	7	8	6	8
8	Napoleon(3502)	Sunseeds	6.9	8	8	6	7
9	UW 99 78	Univ. Wis.	6.9	7	8	7	7
10	Vlaspik	Seminis	6.8	7	8	7	6
11	Jackson(3540)	Sunseeds	6.8	7	8	6	8
12	UW 99 V	Univ. Wis.	6.7	8	7	5	7
13	XP-1914	Seminis	6.7	7	8	6	7
14	Discover(1550)	Seminis	6.7	7	6	6	7
15	WI6842Ax6760B	Wis-USDA	6.7	7	6	6	7
16	WI6884Ax6812A	Wis-USDA	6.6	7	7	6	6
17	HMX-8460	HarrisMoran	6.6	7	7	6	7
18	EX-1911	Seminis	6.6	7	6	6	7
19	CrossCountry4318	HarrisMoran	6.6	7	7	6	7
20	Lafayette	Sunseeds	6.4	7	7	6	7
21	WI6884Ax6849A	Wis-USDA	6.4	7	6	6	6
22	WI6856Ax6760B	Wis-USDA	6.4	7	7	5	7
23	XP-1904	Seminis	6.3	7	8	5	7
24	Manteo	NCStateUniv	6.2	7	8	5	7
25	XVC-5834	Seminis	6.2	7	8	6	6
26	Calypso	NCStateUniv	6.2	7	6	5	6
27	Johnston	NCStateUniv	6.2	7	8	6	6
28	SRQP-1882	Sunseeds	6.1	7	7	5	6
29	Raleigh	NCStateUniv	6.1	7	7	5	6
30	HMX-8461	HarrisMoran	6.0	8	6	5	6
31	Regal	HarrisMoran	6.0	7	7	5	6
32	UW 99 T	Univ. Wis.	6.0	7	7	5	6
33	Royal	HarrisMoran	5.9	7	7	7	4
34	Gy 14	ClemsonUniv	5.1	7	5	4	4
35	Wis.SMR 18	Univ. Wis.	4.7	5	4	4	5
LSD (5%)			0.8	1	1	1	1
Mean			6.5	7	7	6	6
CV (%)			8.4	10	11	16	13

^z Quality rated 1 to 9 (1 = poor, 5 = average, 9 = excellent).

^y Color rated 1 to 9 (1 = white, 5 = medium green, 9 = very dark green).

Correlation (Fruit value with average quality) = 0.11^{ns}

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

Rank	Cultivar or line	Seed source	Firm- ness	L/D ratio	Defects1 ^o			Defects2 ^o		
					2	4	6	2	4	6
1	Wis.SMR 18	Univ. Wis.	18.7	3.1	Y	Y	Y	M	W	W
2	WI6842Ax6760B	Wis-USDA	18.0	2.9	K	T	D	O	X	N
3	EX-1913	Seminis	17.3	3.1	D	D	K	T	T	D
4	Clinton	NCStateUniv	17.3	2.9	H	H	H	M	K	K
5	UW 99 R	Univ. Wis.	17.3	3.4	K	K	K	K	D	D
6	Patton (3528)	Sunseeds	17.0	3.0	K	T	H	H	K	K
7	Jackson(3540)	Sunseeds	17.0	3.1	H	K	M	D	K	D
8	Manteo	NCStateUniv	17.0	3.2	K	O	T	T	K	K
9	HMX-8461	HarrisMoran	17.0	3.1	M	T	M	T	W	K
10	WI6884Ax6849A	Wis-USDA	16.7	3.1	H	T	T	W	C	K
11	Johnston	NCStateUniv	16.7	3.2	K	G	T	D	V	N
12	SRQP-1882	Sunseeds	16.7	3.1	T	D	G	D	G	T
13	XP-1901	Seminis	16.3	3.1	K	K	K	H	K	K
14	UW 99 78	Univ. Wis.	16.3	3.3	K	G	T	G	T	G
15	UW 99 V	Univ. Wis.	16.3	3.3	K	V	T	G	T	K
16	XP-1914	Seminis	16.3	3.3	D	K	B	H	T	K
17	HMX-8460	HarrisMoran	16.0	3.2	G	T	T	T	D	W
18	Lafayette	Sunseeds	16.0	3.3	T	G	T	H	T	G
19	Calypso	NCStateUniv	16.0	3.0	K	T	W	H	D	D
20	Raleigh	NCStateUniv	16.0	3.1	K	K	D	H	T	K
21	Gy 14	ClemsonUniv	16.0	2.9	W	W	W	M	T	H
22	UW 99 69	Univ. Wis.	15.7	3.5	K	V	K	G	T	G
23	Vlasstar(10489)	Seminis	15.7	3.2	K	K	D	T	T	K
24	Discover(1550)	Seminis	15.7	3.3	D	T	W	K	G	D
25	Royal	HarrisMoran	15.7	3.1	K	G	D	G	T	H
26	XVC-5834	Seminis	15.3	3.3	A	T	D	D	G	G
27	CrossCountry4318	HarrisMoran	15.0	3.3	A	T	T	T	G	K
28	XP-1904	Seminis	15.0	2.9	H	K	K	T	K	H
29	UW 99 T	Univ. Wis.	15.0	3.2	H	H	D	K	X	M
30	Vlaspik	Seminis	14.7	3.5	D	T	T	K	C	D
31	EX-1911	Seminis	14.7	3.1	T	T	T	O	A	N
32	WI6884Ax6812A	Wis-USDA	14.0	3.3	G	G	W	T	K	G
33	Napoleon(3502)	Sunseeds	13.7	3.1	H	H	H	K	K	K
34	Regal	HarrisMoran	13.7	3.3	T	G	D	K	T	T
35	WI6856Ax6760B	Wis-USDA	13.3	3.2	K	T	T	K	K	K
LSD (5%)			2.7	0.3						
Mean			15.9	3.2						
CV (%)			10.7	6.4						

^z Quality rated 1 to 9 (1 = poor, 5 = average, 9 = excellent).

Defects were rated as follows (giving primary and secondary for each harvest):

A - wArty fruit	J - RiDGed	S - Separated carpels
B - Blossom end defects	K - Keep(excellent)	T - Tapered ends
C - Crooks excessive	L - Late maturity	U - Uniform green
D - Dogbone shape	M - Mottled fruit	V - Varicolor (dark stem end, light blossom end)
E - Early maturity	N - Nubs excessive	W - White fruit
F - Four celled	O - Offtype fruit	X - neCKS on fruit
G - lonG fruit	P - Placental hollows	Y - Yellow fruit
H - sHort fruit	Q -	Z - diSeased fruit
I - strIPed fruit	R - Reject (poor)	

Table 10. Stage 3 spring pickle trial - fruit keeping ability data (cultigens are ranked by % weight loss).

Rank	Cultivar or line	Seed source	Weight loss (%) ^z	Rating (0 - 9) ^y		Firm- ness (lb.) ^x
				Shriv- eling	Rots & disease	
1	WI6856Ax6760B	Wis-USDA	11	1	1	15
2	Royal	HarrisMoran	13	4	1	14
3	UW 99 R	Univ. Wis.	13	3	2	14
4	Napoleon(3502)	Sunseeds	14	3	2	12
5	EX-1913	Seminis	14	6	2	13
6	XVC-5834	Seminis	14	7	1	14
7	WI6884Ax6812A	Wis-USDA	14	2	1	13
8	Regal	HarrisMoran	14	7	2	14
9	UW 99 78	Univ. Wis.	14	2	1	13
10	Raleigh	NCStateUniv	14	5	2	14
11	Jackson(3540)	Sunseeds	15	3	1	14
12	Vlasstar(10489)	Seminis	15	4	2	14
13	Lafayette	Sunseeds	15	4	2	13
14	UW 99 V	Univ. Wis.	15	3	0	13
15	WI6884Ax6849A	Wis-USDA	15	4	1	13
16	WI6842Ax6760B	Wis-USDA	15	4	1	14
17	SRQP-1882	Sunseeds	15	4	1	12
18	EX-1911	Seminis	15	5	1	12
19	Patton (3528)	Sunseeds	15	3	1	15
20	Johnston	NCStateUniv	15	5	1	15
21	Vlaspik	Seminis	15	5	1	14
22	XP-1914	Seminis	15	3	1	13
23	UW 99 T	Univ. Wis.	16	3	0	13
24	XP-1904	Seminis	16	6	1	12
25	UW 99 69	Univ. Wis.	16	6	2	15
26	Discover(1550)	Seminis	16	4	0	13
27	Calypso	NCStateUniv	16	6	2	15
28	HMX-8461	HarrisMoran	17	5	4	16
29	Manteo	NCStateUniv	17	4	1	15
30	HMX-8460	HarrisMoran	17	7	1	11
31	Clinton	NCStateUniv	18	3	0	14
32	CrossCountry4318	HarrisMoran	18	5	1	13
33	XP-1901	Seminis	20	4	1	15
34	Wis.SMR 18	Univ. Wis.	20	8	3	13
35	Gy 14	ClemsonUniv	26	5	3	12
LSD (5%)			7	3	2	2
Mean			16	4	1	13
CV (%)			29	40	109	11

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

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

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

Correlation (Weight loss with shriveling) = 0.36**

Correlation (Weight loss with firmness) = 0.03^{ns}

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

Rank	Cultivar or line	Seed source	Total bloater damage	Balloon	Lens	Honey- comb
1	UW 99 R	Univ. Wis.	0	0	0	0
2	WI6884Ax6812A	Wis-USDA	0	0	0	0
3	UW 99 78	Univ. Wis.	0	0	0	0
4	Manteo	NCStateUniv	0	0	0	0
5	Raleigh	NCStateUniv	1	0	0	1
6	UW 99 T	Univ. Wis.	1	0	0	1
7	Johnston	NCStateUniv	1	1	0	0
8	EX-1913	Seminis	1	1	0	0
9	Discover(1550)	Seminis	1	1	0	0
10	XP-1901	Seminis	2	0	0	2
11	HMX-8461	HarrisMoran	2	2	0	0
12	UW 99 V	Univ. Wis.	2	1	0	1
13	UW 99 69	Univ. Wis.	2	2	0	0
14	Regal	HarrisMoran	2	2	0	0
15	HMX-8460	HarrisMoran	2	2	0	0
16	XVC-5834	Seminis	3	3	0	1
17	WI6884Ax6849A	Wis-USDA	4	3	0	0
18	Calypso	NCStateUniv	4	3	0	1
19	Royal	HarrisMoran	4	4	0	0
20	Clinton	NCStateUniv	4	4	0	0
21	SRQP-1882	Sunseeds	5	5	0	0
22	Gy 14	ClemsonUniv	5	5	0	0
23	EX-1911	Seminis	5	4	1	1
24	WI6856Ax6760B	Wis-USDA	5	5	0	0
25	XP-1914	Seminis	5	5	0	0
26	Vlaspik	Seminis	6	4	1	0
27	Lafayette	Sunseeds	6	6	0	0
28	Napoleon(3502)	Sunseeds	7	6	0	1
29	WI6842Ax6760B	Wis-USDA	7	6	0	1
30	Patton (3528)	Sunseeds	7	6	0	0
31	Wis.SMR 18	Univ. Wis.	8	8	0	0
32	XP-1904	Seminis	9	7	1	2
33	Vlasstar(10489)	Seminis	10	10	0	0
34	Jackson(3540)	Sunseeds	11	11	0	0
35	CrossCountry4318	HarrisMoran	11	11	0	0
LSD (5%)			8	7	1	1
Mean			4	4	0	0
CV (%)			117	125	434	279

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

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

Rank	Cultivar or line	Seed source	Bloaters + defects	Total bloater damage	Total defects	Blossom -end defects	Placen -tal hollow	Soft center
1	WI6884Ax6812A	Wis-USDA	0	0	0	0	0	0
2	UW 99 78	Univ. Wis.	0	0	0	0	0	0
3	Raleigh	NCStateUniv	1	1	0	0	0	0
4	UW 99 T	Univ. Wis.	1	1	0	0	0	0
5	Johnston	NCStateUniv	1	1	0	0	0	0
6	UW 99 R	Univ. Wis.	1	0	1	1	0	0
7	XP-1901	Seminis	2	2	0	0	0	0
8	Discover(1550)	Seminis	2	1	1	0	0	1
9	Regal	HarrisMoran	2	2	0	0	0	0
10	Manteo	NCStateUniv	2	0	2	0	1	2
11	EX-1913	Seminis	3	1	2	0	1	0
12	HMX-8461	HarrisMoran	3	2	1	0	1	0
13	UW 99 69	Univ. Wis.	3	2	1	0	0	1
14	HMX-8460	HarrisMoran	3	2	0	0	0	0
15	UW 99 V	Univ. Wis.	3	2	1	0	0	1
16	WI6884Ax6849A	Wis-USDA	4	4	0	0	0	0
17	Royal	HarrisMoran	4	4	0	0	0	0
18	Calypso	NCStateUniv	4	4	0	0	0	0
19	XVC-5834	Seminis	5	3	2	0	2	0
20	SRQP-1882	Sunseeds	5	5	0	0	0	0
21	Gy 14	ClemsonUniv	5	5	0	0	0	0
22	Clinton	NCStateUniv	5	4	1	1	1	0
23	Vlaspik	Seminis	6	6	1	0	0	1
24	EX-1911	Seminis	7	5	2	0	0	2
25	XP-1914	Seminis	7	5	2	0	1	1
26	Lafayette	Sunseeds	7	6	1	0	0	1
27	Patton (3528)	Sunseeds	7	7	1	0	1	0
28	WI6856Ax6760B	Wis-USDA	8	5	2	0	0	2
29	WI6842Ax6760B	Wis-USDA	8	7	1	1	0	0
30	Napoleon(3502)	Sunseeds	9	7	2	0	1	1
31	Wis.SMR 18	Univ. Wis.	9	8	0	0	0	0
32	XP-1904	Seminis	10	9	1	1	1	0
33	Vlasstar(10489)	Seminis	10	10	0	0	0	0
34	Jackson(3540)	Sunseeds	11	11	0	0	0	0
35	CrossCountry4318	HarrisMoran	14	11	3	1	2	0
LSD (5%)			8	8	2	1	1	2
Mean			5	4	1	0	0	0
CV (%)			107	118	172	423	199	320

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

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

Rank	Cultivar or line	Seed source	Gyn. rating ^z	Vine size ^y	Vine color ^x
1	UW 99 R	Univ. Wis.	9	8	8
2	UW 99 78	Univ. Wis.	9	7	8
3	UW 99 T	Univ. Wis.	9	7	8
4	EX-1911	Seminis	9	5	8
5	WI6884Ax6849A	Wis-USDA	9	8	7
6	Vlasstar(10489)	Seminis	9	7	7
7	Regal	HarrisMoran	9	7	8
8	Calypso	NCStateUniv	9	7	7
9	Raleigh	NCStateUniv	9	6	8
10	Discover(1550)	Seminis	9	6	7
11	XVC-5834	Seminis	8	8	8
12	Lafayette	Sunseeds	8	7	8
13	Patton (3528)	Sunseeds	8	6	8
14	Vlaspik	Seminis	8	8	7
15	WI6884Ax6812A	Wis-USDA	8	7	8
16	UW 99 69	Univ. Wis.	8	7	8
17	XP-1914	Seminis	8	5	8
18	UW 99 V	Univ. Wis.	8	8	7
19	EX-1913	Seminis	8	5	8
20	Johnston	NCStateUniv	7	7	8
21	HMX-8460	HarrisMoran	7	7	8
22	XP-1904	Seminis	7	7	8
23	XP-1901	Seminis	7	6	8
24	WI6842Ax6760B	Wis-USDA	7	7	7
25	HMX-8461	HarrisMoran	6	6	8
26	Jackson(3540)	Sunseeds	6	3	8
27	Gy 14	ClemsonUniv	6	8	7
28	Wis.SMR 18	Univ. Wis.	6	8	7
29	WI6856Ax6760B	Wis-USDA	6	7	7
30	SRQP-1882	Sunseeds	6	6	8
31	CrossCountry4318	HarrisMoran	5	7	8
32	Manteo	NCStateUniv	5	6	7
33	Napoleon(3502)	Sunseeds	5	4	8
34	Royal	HarrisMoran	5	7	8
35	Clinton	NCStateUniv	4	7	7
	LSD (5%)		2	2	1
	Mean		7	6	8
	CV (%)		18	18	6

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

^y Size rated 1 to 9 (1=very small, 9=very large).

^x Color rated 1 to 9 (1=yellow, 9=very dark green).

Correlation (Yield with gynoecious rating) = 0.33**

Correlation (Yield with vine size) = 0.30**

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

Rank	Cultivar or line	Seed source	Downy mildew
1	Vlasstar(10489)	Seminis	1.0
2	Regal	HarrisMoran	1.0
3	Lafayette	Sunseeds	1.0
4	Patton (3528)	Sunseeds	1.0
5	XP-1914	Seminis	1.0
6	HMX-8460	HarrisMoran	1.0
7	XP-1904	Seminis	1.0
8	HMX-8461	HarrisMoran	1.0
9	Jackson(3540)	Sunseeds	1.0
10	Gy 14	ClemsonUniv	1.0
11	WI6856Ax6760B	Wis-USDA	1.0
12	CrossCountry4318	HarrisMoran	1.0
13	Napoleon(3502)	Sunseeds	1.0
14	UW 99 78	Univ. Wis.	1.3
15	UW 99 T	Univ. Wis.	1.3
16	Raleigh	NCStateUniv	1.3
17	Discover(1550)	Seminis	1.3
18	Vlaspik	Seminis	1.3
19	EX-1913	Seminis	1.3
20	Johnston	NCStateUniv	1.3
21	XP-1901	Seminis	1.3
22	SRQP-1882	Sunseeds	1.3
23	UW 99 R	Univ. Wis.	1.7
24	Calypso	NCStateUniv	1.7
25	UW 99 69	Univ. Wis.	1.7
26	UW 99 V	Univ. Wis.	1.7
27	WI6842Ax6760B	Wis-USDA	1.7
28	Clinton	NCStateUniv	1.7
29	EX-1911	Seminis	2.3
30	XVC-5834	Seminis	2.3
31	Royal	HarrisMoran	2.7
32	WI6884Ax6812A	Wis-USDA	3.0
33	WI6884Ax6849A	Wis-USDA	3.7
34	Manteo	NCStateUniv	4.7
35	Wis.SMR 18	Univ. Wis.	5.3
	LSD (5%)		1.0
	Mean		1.7
	CV (%)		38.8

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

Correlation (Yield vs. disease rating) = -0.20*

Table 15. Stage 3 spring pickle trial - selection indexes (cultigens ranked by SWI1).^z

Rank	Cultivar or line	Seed source	Simple weighted		Average rank	
			SWI1	SWI2	ARI1	ARI2
1	Vlaspik	Seminis	12.5	10.3	12.9	14.3
2	Johnston	NCStateUniv	12.1	9.9	14.4	13.2
3	WI6884Ax6812A	Wis-USDA	11.9	9.8	15.1	17.5
4	UW 99 69	Univ. Wis.	11.5	9.6	10.9	13.3
5	UW 99 R	Univ. Wis.	11.4	9.7	13.7	14.1
6	UW 99 V	Univ. Wis.	11.2	9.5	15.3	15.9
7	XVC-5834	Seminis	11.1	9.2	16.6	17.3
8	XP-1901	Seminis	10.6	9.0	14.1	15.2
9	Royal	HarrisMoran	10.6	8.7	19.0	18.7
10	Regal	HarrisMoran	10.5	9.1	18.1	18.1
11	Vlasstar(10489)	Seminis	10.5	9.0	13.0	14.4
12	EX-1913	Seminis	10.5	8.8	13.2	14.0
13	SRQP-1882	Sunseeds	10.3	8.7	18.7	17.3
14	XP-1904	Seminis	10.3	8.8	16.8	18.3
15	Jackson(3540)	Sunseeds	10.1	8.6	16.1	15.3
16	UW 99 T	Univ. Wis.	10.1	8.7	19.4	19.4
17	Discover(1550)	Seminis	9.9	8.4	16.7	16.6
18	Lafayette	Sunseeds	9.9	8.5	17.7	17.4
19	UW 99 78	Univ. Wis.	9.9	8.6	16.3	16.9
20	Raleigh	NCStateUniv	9.9	8.4	19.6	18.7
21	WI6842Ax6760B	Wis-USDA	9.9	8.6	17.7	17.1
22	EX-1911	Seminis	9.8	8.3	19.5	20.6
23	WI6884Ax6849A	Wis-USDA	9.5	8.3	21.0	20.8
24	XP-1914	Seminis	9.4	8.0	18.2	17.9
25	CrossCountry4318	HarrisMoran	9.4	8.4	18.3	18.7
26	Gy 14	ClemsonUniv	9.2	8.0	23.6	20.8
27	HMX-8461	HarrisMoran	9.0	7.7	21.0	17.9
28	Patton (3528)	Sunseeds	8.9	8.0	17.3	18.1
29	HMX-8460	HarrisMoran	8.9	7.8	18.8	17.5
30	WI6856Ax6760B	Wis-USDA	8.8	7.8	19.3	20.8
31	Calypso	NCStateUniv	8.7	7.7	21.6	20.1
32	Napoleon(3502)	Sunseeds	8.6	7.8	17.9	20.9
33	Clinton	NCStateUniv	8.0	7.1	19.9	20.7
34	Manteo	NCStateUniv	7.6	6.6	25.6	24.5
35	Wis.SMR 18	Univ. Wis.	5.3	5.1	32.6	28.0
LSD (5%)			1.8	1.3	5.7	5.0
Mean			9.9	8.5	18.0	18.0
CV (%)			11.0	9.3	19.6	17.2

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

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

Correlation (Yield with SWI1) = 0.92**

Correlation (Yield with ARI1) = -0.65**

Summer (Stage 4) Pickling Cucumber Trial 1999

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 30 June, and harvested 4 times (Mondays and Thursdays) between 9 through 26 August.

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	UW 99 78	Univ. Wis.
2	Raleigh	NCStateUniv
3	SRQP-1882	Sunseeds
4	UW 99 69	Univ. Wis.
5	WI6884Ax6812A	Wis-USDA
6	Regal	HarrisMoran
7	XVC-5834	Seminis

Table 16. Stage 4 summer pickle trial - yield data (cultigens are ranked by fruit value).

Rank	Cultivar or line	Seed source	Value (\$)	Weight (cwt)	Fruit grade distribution (% by weight)				Plants per A (x1000)	
					Cull	No.1	No.2	No.3		No.4
1	Raleigh	NCStateUniv	1558	223	16	13	27	32	13	20
2	XVC-5834	Seminis	1520	221	23	12	29	29	7	18
3	UW 99 78	Univ. Wis.	1475	214	18	13	29	29	11	19
4	SRQP-1882	Sunseeds	1433	231	24	11	26	28	11	18
5	WI6884Ax6812A	Wis-USDA	1429	202	21	14	31	26	9	22
6	Jackson(3540)	Sunseeds	1344	188	17	14	31	28	9	22
7	Regal	HarrisMoran	1334	221	20	10	22	34	14	22
8	UW 99 69	Univ. Wis.	1324	193	26	10	30	30	4	22
9	WI6856Ax6760B	Wis-USDA	1317	183	20	12	29	35	4	21
10	Lafayette	Sunseeds	1305	189	25	15	31	21	9	22
11	XP-1901	Seminis	1304	207	19	10	23	34	14	22
12	Royal	HarrisMoran	1275	175	23	14	29	28	5	20
13	Napoleon(3502)	Sunseeds	1273	181	17	11	32	31	8	19
14	Patton (3528)	Sunseeds	1257	166	13	13	34	30	10	19
15	HMX-8461	HarrisMoran	1234	162	14	15	30	32	8	20
16	EX-1911	Seminis	1216	188	31	14	26	22	7	22
17	EX-1913	Seminis	1204	178	19	12	26	34	10	21
18	WI6842Ax6760B	Wis-USDA	1169	192	17	10	24	31	18	21
19	Johnston	NCStateUniv	1143	205	25	8	19	35	13	22
20	UW 99 T	Univ. Wis.	1140	167	23	12	29	31	6	22
21	UW 99 V	Univ. Wis.	1132	170	24	9	35	25	7	22
22	UW 99 R	Univ. Wis.	1129	192	21	6	29	31	13	22
23	XP-1914	Seminis	1124	205	31	9	23	25	11	22
24	Calypso	NCStateUniv	1064	157	20	13	28	25	14	17
25	XP-1904	Seminis	1064	176	17	9	24	34	15	22
26	Discover(1550)	Seminis	1046	206	26	7	17	35	15	20
27	WI6884Ax6849A	Wis-USDA	1044	186	22	8	25	26	18	19
28	CrossCountry4318	HarrisMoran	1041	178	22	9	21	33	14	21
29	Manteo	NCStateUniv	1023	165	23	10	25	34	10	21
30	Vlaspik	Seminis	1012	162	25	12	22	30	11	21
31	HMX-8460	HarrisMoran	934	165	27	10	24	23	15	22
32	Clinton	NCStateUniv	910	123	15	14	31	30	10	21
33	Gy 14	ClemsonUniv	874	137	23	12	29	24	12	17
34	Vlasstar(10489)	Seminis	864	166	23	8	17	34	19	22
35	Wis.SMR 18	Univ. Wis.	647	123	27	9	21	30	13	21
LSD (5%)			378	59	8	5	7	9	9	4
Mean			1176	182	22	11	27	30	11	21
CV (%)			20	20	22	28	17	21	48	10

Correlation (Fruit value with fruit weight) = 0.85**

Table 17. Stage 4 summer pickle trial - earliness data (cultigens are ranked by fruit value in harvests 1 and 2).

Rank	Cultivar or line	Seed source	Cumulative fruit value ^z and % of total value ^z (6 harvests) for harvest:									
			1		1-2		1-3		1-4		1-5	
			\$/A	%	\$/A	%	\$/A	%	\$/A	%	\$/A	%
1	SRQP-1882	Sunseeds	288	20	455	32	820	58	977	69	1244	87
2	WI6884Ax6812A	Wis-USDA	296	21	426	30	786	56	1009	71	1286	90
3	UW 99 69	Univ. Wis.	316	24	407	31	773	56	958	70	1156	84
4	UW 99 V	Univ. Wis.	356	32	407	36	669	59	757	66	924	81
5	XP-1901	Seminis	309	24	394	31	740	58	944	73	1177	91
6	XVC-5834	Seminis	319	21	391	25	747	47	929	59	1348	88
7	Regal	HarrisMoran	265	20	374	28	717	54	940	70	1189	89
8	CrossCountry4318	HarrisMoran	287	28	374	36	614	59	740	71	911	88
9	UW 99 78	Univ. Wis.	232	13	368	22	655	40	954	60	1289	86
10	Discover(1550)	Seminis	291	28	352	34	622	59	803	77	979	94
11	Raleigh	NCStateUniv	237	15	339	22	683	44	984	63	1389	89
12	Johnston	NCStateUniv	295	26	337	30	646	57	833	73	1040	91
13	Jackson(3540)	Sunseeds	239	16	332	23	625	45	907	66	1217	89
14	UW 99 T	Univ. Wis.	263	22	314	26	566	48	676	58	941	81
15	XP-1914	Seminis	266	24	307	28	591	53	767	68	990	88
16	UW 99 R	Univ. Wis.	266	24	307	27	608	54	695	61	911	81
17	Lafayette	Sunseeds	203	14	307	22	632	46	814	59	1117	84
18	EX-1911	Seminis	207	16	305	24	589	47	865	70	1070	87
19	WI6856Ax6760B	Wis-USDA	228	18	296	23	543	41	771	58	1147	86
20	Patton (3528)	Sunseeds	216	17	283	22	515	41	663	52	1027	82
21	WI6842Ax6760B	Wis-USDA	211	19	272	24	531	46	707	61	1017	87
22	Vlaspik	Seminis	235	23	259	26	437	43	557	55	828	82
23	EX-1913	Seminis	175	15	250	20	509	42	737	60	1038	86
24	Napoleon(3502)	Sunseeds	157	12	249	19	551	41	789	59	1115	86
25	HMX-8461	HarrisMoran	146	11	236	18	476	37	684	54	1078	87
26	WI6884Ax6849A	Wis-USDA	156	16	229	22	480	46	662	63	902	86
27	Vlasstar(10489)	Seminis	179	21	228	27	434	50	537	62	710	82
28	Royal	HarrisMoran	155	13	224	18	495	39	769	60	1093	85
29	XP-1904	Seminis	164	15	194	18	395	37	502	47	836	78
30	Wis.SMR 18	Univ. Wis.	113	20	179	28	289	43	403	61	545	81
31	Gy 14	ClemsonUniv	115	13	175	20	325	37	451	51	682	78
32	HMX-8460	HarrisMoran	110	12	173	18	328	35	464	49	749	80
33	Calypso	NCStateUniv	62	7	168	16	367	35	571	53	916	86
34	Manteo	NCStateUniv	77	8	121	13	372	36	562	54	860	83
35	Clinton	NCStateUniv	87	9	115	12	231	24	391	41	693	76
LSD (5%)			160	12	187	12	298	16	352	15	362	8
Mean			215	18	290	24	553	46	736	61	1012	85
CV (%)			46	39	40	29	33	22	29	15	22	6

Correlation (Fruit value with value in harvests 1 and 2) = 0.69**

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

Rank	Cultivar or line	Seed source	Average quality ^z	Shape ^z	Color ^y	Seed- cell ^z	Overall impres- sion ^z
1	UW 99 78	Univ. Wis.	7.2	8	7	7	7
2	Vlasstar(10489)	Seminis	7.2	7	7	7	7
3	XP-1914	Seminis	7.2	7	7	8	7
4	Clinton	NCStateUniv	7.1	8	7	8	6
5	UW 99 69	Univ. Wis.	7.1	8	7	7	7
6	XP-1904	Seminis	7.1	7	7	7	7
7	CrossCountry4318	HarrisMoran	7.0	8	6	7	6
8	WI6884Ax6849A	Wis-USDA	7.0	8	6	7	7
9	Raleigh	NCStateUniv	7.0	7	7	6	7
10	UW 99 R	Univ. Wis.	7.0	7	7	7	7
11	Calypso	NCStateUniv	6.9	7	6	6	7
12	WI6842Ax6760B	Wis-USDA	6.9	8	7	7	6
13	Lafayette	Sunseeds	6.9	7	7	7	6
14	WI6856Ax6760B	Wis-USDA	6.8	7	7	6	7
15	XP-1901	Seminis	6.8	6	6	7	7
16	UW 99 T	Univ. Wis.	6.8	8	6	7	6
17	EX-1913	Seminis	6.8	7	6	8	6
18	Regal	HarrisMoran	6.7	8	7	6	7
19	WI6884Ax6812A	Wis-USDA	6.7	7	7	7	6
20	Manteo	NCStateUniv	6.7	7	7	6	6
21	Discover(1550)	Seminis	6.7	7	6	7	6
22	Johnston	NCStateUniv	6.7	7	7	7	6
23	Patton (3528)	Sunseeds	6.7	7	7	7	7
24	EX-1911	Seminis	6.7	6	6	7	7
25	Jackson(3540)	Sunseeds	6.3	8	7	6	5
26	HMX-8461	HarrisMoran	6.3	7	6	6	6
27	UW 99 V	Univ. Wis.	6.3	7	7	6	6
28	XVC-5834	Seminis	6.3	7	7	6	6
29	Royal	HarrisMoran	6.2	8	7	6	5
30	Gy 14	ClemsonUniv	6.2	7	6	7	5
31	Vlaspik	Seminis	6.2	7	6	6	6
32	HMX-8460	HarrisMoran	6.2	7	6	7	5
33	Napoleon(3502)	Sunseeds	6.1	8	7	5	5
34	SRQP-1882	Sunseeds	6.1	7	7	6	6
35	Wis.SMR 18	Univ. Wis.	4.2	5	5	4	4
	LSD (5%)		0.7	1	1	1	1
	Mean		6.6	7	7	7	6
	CV (%)		6.7	8	10	13	13

^z Quality rated 1 to 9 (1 = poor, 5 = average, 9 = excellent).

^y Color rated 1 to 9 (1 = white, 5 = medium green, 9 = very dark green).

Correlation (Fruit value with average quality) = 0.26**

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

Rank	Cultivar or line	Seed source	Firm- ness	L/D ratio	Defects1 ^o			Defects2 ^o		
					2	4	6	2	4	6
1	Clinton	NCStateUniv	18.7	2.7	H	H	H	K	K	K
2	WI6842Ax6760B	Wis-USDA	17.7	3.2	N	K	K	D	W	D
3	EX-1913	Seminis	17.7	2.9	K	H	N	D	D	T
4	UW 99 78	Univ. Wis.	17.3	3.7	G	G	G	K	K	K
5	WI6884Ax6849A	Wis-USDA	17.0	3.1	W	W	K	D	H	D
6	Patton (3528)	Sunseeds	17.0	3.4	T	D	H	K	K	M
7	XP-1914	Seminis	16.7	3.3	C	D	D	K	K	K
8	UW 99 R	Univ. Wis.	16.7	3.0	K	D	D	C	G	G
9	Vlasstar(10489)	Seminis	16.0	3.2	H	K	D	C	D	C
10	Lafayette	Sunseeds	16.0	3.6	C	D	T	G	K	C
11	HMX-8461	HarrisMoran	16.0	3.1	M	W	W	D	D	H
12	Gy 14	ClemsonUniv	16.0	3.0	D	W	W	W	D	H
13	WI6856Ax6760B	Wis-USDA	15.7	3.2	N	H	K	D	K	D
14	XP-1901	Seminis	15.7	3.1	D	K	T	K	T	K
15	Johnston	NCStateUniv	15.7	3.3	D	H	C	C	D	K
16	EX-1911	Seminis	15.7	3.4	K	T	T	C	C	K
17	Vlaspik	Seminis	15.7	3.4	D	D	C	C	G	D
18	UW 99 69	Univ. Wis.	15.3	3.5	G	G	C	K	K	K
19	CrossCountry4318	HarrisMoran	15.3	3.2	C	K	C	N	D	T
20	Calypso	NCStateUniv	15.3	3.1	C	H	D	K	K	K
21	WI6884Ax6812A	Wis-USDA	15.3	3.5	M	T	H	C	D	K
22	UW 99 V	Univ. Wis.	15.3	3.3	V	D	N	D	K	D
23	HMX-8460	HarrisMoran	15.3	3.3	N	D	D	D	M	T
24	SRQP-1882	Sunseeds	15.3	3.6	D	T	C	G	G	T
25	XP-1904	Seminis	15.0	3.1	C	K	K	D	K	K
26	Manteo	NCStateUniv	15.0	3.0	D	H	N	K	D	D
27	Discover(1550)	Seminis	15.0	3.4	D	G	D	C	D	G
28	Royal	HarrisMoran	15.0	3.4	D	O	D	C	M	G
29	Wis.SMR 18	Univ. Wis.	15.0	3.2	W	Y	D	T	W	W
30	UW 99 T	Univ. Wis.	14.3	3.4	V	D	V	C	T	D
31	Regal	HarrisMoran	14.3	3.3	D	D	K	C	G	T
32	Jackson(3540)	Sunseeds	14.3	3.2	M	H	H	N	D	K
33	XVC-5834	Seminis	14.3	3.4	G	G	T	D	T	K
34	Napoleon(3502)	Sunseeds	14.0	3.2	H	H	H	V	M	M
35	Raleigh	NCStateUniv	13.7	3.3	C	K	H	G	K	K
LSD (5%)			2.3	0.3						
Mean			15.7	3.2						
CV (%)			9.1	5.6						

^z Quality rated 1 to 9 (1 = poor, 5 = average, 9 = excellent).

Defects were rated as follows (giving primary and secondary for each harvest):

A - wArty fruit	J - RiDGed	S - Separated carpels
B - Blossom end defects	K - Keep(excellent)	T - Tapered ends
C - Crooks excessive	L - Late maturity	U - Uniform green
D - Dogbone shape	M - Mottled fruit	V - Varicolor (dark stem end, light blossom end)
E - Early maturity	N - Nubs excessive	W - White fruit
F - Four celled	O - Offtype fruit	X - neCKS on fruit
G - lonG fruit	P - Placental hollows	Y - Yellow fruit
H - sHort fruit	Q -	Z - diSeased fruit
I - strIPed fruit	R - Reject (poor)	

Table 20. Stage 4 summer pickle trial - sex expression and vine data (cultigens are ranked by gynoecious rating).

Rank	Cultivar or line	Seed source	Gyn. rating ^z	Vine size ^y	Vine color ^x
1	WI6884Ax6812A	Wis-USDA	9	7	6
2	Patton (3528)	Sunseeds	9	7	7
3	UW 99 R	Univ. Wis.	9	7	7
4	Vlasstar(10489)	Seminis	9	7	7
5	Raleigh	NCStateUniv	9	7	7
6	WI6884Ax6849A	Wis-USDA	9	7	6
7	UW 99 V	Univ. Wis.	9	7	8
8	UW 99 T	Univ. Wis.	9	7	8
9	Royal	HarrisMoran	9	6	6
10	EX-1911	Seminis	9	5	6
11	XVC-5834	Seminis	9	8	7
12	UW 99 78	Univ. Wis.	9	7	7
13	Regal	HarrisMoran	9	7	6
14	Lafayette	Sunseeds	9	7	7
15	Calypso	NCStateUniv	9	6	7
16	Vlaspik	Seminis	9	6	7
17	UW 99 69	Univ. Wis.	8	8	7
18	SRQP-1882	Sunseeds	8	7	7
19	XP-1914	Seminis	8	6	7
20	Gy 14	ClemsonUniv	8	5	7
21	Napoleon(3502)	Sunseeds	8	5	7
22	Discover(1550)	Seminis	8	8	7
23	WI6842Ax6760B	Wis-USDA	8	7	6
24	HMX-8460	HarrisMoran	8	6	7
25	EX-1913	Seminis	8	6	7
26	Johnston	NCStateUniv	8	6	7
27	XP-1901	Seminis	8	6	7
28	CrossCountry4318	HarrisMoran	7	7	8
29	HMX-8461	HarrisMoran	7	6	7
30	Jackson(3540)	Sunseeds	7	4	8
31	XP-1904	Seminis	6	6	6
32	WI6856Ax6760B	Wis-USDA	6	6	6
33	Manteo	NCStateUniv	5	6	5
34	Wis.SMR 18	Univ. Wis.	5	7	4
35	Clinton	NCStateUniv	3	6	8
LSD (5%)			2	1	1
Mean			8	6	7
CV (%)			14	14	13

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

^y Size rated 1 to 9 (1=very small, 9=very large).

^x Color rated 1 to 9 (1=yellow, 9=very dark green).

Correlation (Yield with gynoecious rating) = 0.17^{ns}

Correlation (Yield with vine size) = 0.06^{ns}

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

Rank	Cultivar or line	Seed source	Downy mildew
1	Patton (3528)	Sunseeds	1.0
2	UW 99 V	Univ. Wis.	1.0
3	Calypso	NCStateUniv	1.0
4	XP-1914	Seminis	1.0
5	Gy 14	ClemsonUniv	1.0
6	HMX-8460	HarrisMoran	1.0
7	EX-1913	Seminis	1.0
8	Johnston	NCStateUniv	1.0
9	CrossCountry4318	HarrisMoran	1.0
10	XP-1904	Seminis	1.0
11	Clinton	NCStateUniv	1.0
12	UW 99 R	Univ. Wis.	1.3
13	Raleigh	NCStateUniv	1.3
14	UW 99 T	Univ. Wis.	1.3
15	UW 99 78	Univ. Wis.	1.3
16	Lafayette	Sunseeds	1.3
17	Vlaspik	Seminis	1.3
18	UW 99 69	Univ. Wis.	1.3
19	HMX-8461	HarrisMoran	1.3
20	Royal	HarrisMoran	1.7
21	Regal	HarrisMoran	1.7
22	SRQP-1882	Sunseeds	1.7
23	Napoleon(3502)	Sunseeds	1.7
24	WI6842Ax6760B	Wis-USDA	1.7
25	XP-1901	Seminis	1.7
26	Jackson(3540)	Sunseeds	1.7
27	Discover(1550)	Seminis	2.0
28	WI6884Ax6812A	Wis-USDA	2.7
29	Vlasstar(10489)	Seminis	2.7
30	WI6884Ax6849A	Wis-USDA	2.7
31	EX-1911	Seminis	2.7
32	XVC-5834	Seminis	3.3
33	WI6856Ax6760B	Wis-USDA	4.0
34	Manteo	NCStateUniv	4.3
35	Wis.SMR 18	Univ. Wis.	5.0
LSD (5%)			1.6
Mean			1.7
CV (%)			53.6

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

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

Table 22. Stage 4 summer pickle trial - selection indexes (cultigens ranked by SWI1).^z

Rank	Cultivar or line	Seed source	Simple weighted		Average rank	
			SWI1	SWI2	ARI1	ARI2
1	UW 99 78	Univ. Wis.	7.5	6.6	13.3	14.0
2	Raleigh	NCStateUniv	7.4	6.6	12.3	14.9
3	SRQP-1882	Sunseeds	7.3	6.4	18.2	16.7
4	UW 99 69	Univ. Wis.	7.3	6.5	12.8	13.5
5	WI6884Ax6812A	Wis-USDA	7.2	6.3	16.2	16.6
6	Regal	HarrisMoran	7.0	6.3	14.6	15.4
7	XVC-5834	Seminis	7.0	6.1	19.0	19.2
8	Jackson(3540)	Sunseeds	6.9	6.1	18.3	19.1
9	XP-1901	Seminis	6.9	6.2	14.9	14.2
10	Lafayette	Sunseeds	6.9	6.1	15.8	16.0
11	UW 99 V	Univ. Wis.	6.8	6.1	16.7	15.6
12	CrossCountry4318	HarrisMoran	6.7	6.1	14.3	14.1
13	XP-1914	Seminis	6.7	6.1	14.2	13.4
14	Patton (3528)	Sunseeds	6.7	6.0	15.5	15.6
15	Johnston	NCStateUniv	6.7	6.1	16.3	14.8
16	UW 99 R	Univ. Wis.	6.6	6.0	15.1	14.5
17	UW 99 T	Univ. Wis.	6.6	5.9	16.7	17.8
18	EX-1913	Seminis	6.6	5.9	16.7	16.2
19	WI6842Ax6760B	Wis-USDA	6.6	5.9	17.3	16.3
20	Napoleon(3502)	Sunseeds	6.5	5.8	20.9	21.7
21	WI6856Ax6760B	Wis-USDA	6.4	5.7	17.9	19.1
22	Discover(1550)	Seminis	6.4	5.9	18.8	17.9
23	Royal	HarrisMoran	6.4	5.7	20.4	20.7
24	HMX-8461	HarrisMoran	6.4	5.7	19.2	19.5
25	EX-1911	Seminis	6.4	5.7	18.2	18.6
26	XP-1904	Seminis	6.2	5.7	16.9	18.0
27	WI6884Ax6849A	Wis-USDA	6.0	5.5	19.5	19.5
28	Vlaspik	Seminis	6.0	5.5	21.9	20.6
29	Calypso	NCStateUniv	6.0	5.5	18.4	19.6
30	Clinton	NCStateUniv	5.9	5.2	18.6	19.1
31	Vlasstar(10489)	Seminis	5.7	5.4	19.2	19.5
32	HMX-8460	HarrisMoran	5.7	5.3	22.3	21.3
33	Gy 14	ClemsonUniv	5.7	5.1	23.0	22.3
34	Manteo	NCStateUniv	5.3	4.9	23.9	24.9
35	Wis.SMR 18	Univ. Wis.	4.0	3.8	32.8	29.8
LSD (5%)			1.0	0.8	5.8	5.2
Mean			6.4	5.8	18.0	18.0
CV (%)			10.0	8.6	19.9	17.9

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

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

Correlation (Yield with SWI1) = 0.89**

Correlation (Yield with ARI1) = -0.56**

Slicing Cucumbers

Preliminary (Stage 1) Slicing Cucumber Trial 1999

The stage 1 slicer trial was not run this year.

Observational (Stage 2) Slicing Cucumber Trial 1999

The stage 2 slicer trial was not run this year.

Spring (Stage 3) Slicing Cucumber Trial 1999

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 24 June through 12 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	Thunder (1700)	Seminis
2	General Lee (4440)	Harris Moran
3	SRQS-2389	Sunseeds
4	SRQS-2646	Sunseeds
5	Greensleeves	Harris Moran
6	Dasher II	Seminis

Table 23. Stage 3 spring slicer trial - yield data (cultigens ranked by cwt/A of Fancy + No. 1 grade fruit).

Rank	Cultivar or line	Seed source	Yield (cwt/A)		Percent		Plants per A (X1000)
			Fancy +No.1	Market- able	Fancy +No.1	Percent culls	
1	SRQS-2389	Sunseeds	249	408	51	15	26
2	SCU-6601	SakataSeed	242	384	52	16	26
3	Thunder(1700)	Seminis	239	386	49	20	26
4	GeneralLee(4440)	HarrisMoran	237	430	45	18	26
5	Greensleeves	HarrisMoran	225	355	53	14	25
6	Dasher II	Seminis	224	369	49	16	25
7	SRQS-2644	Sunseeds	207	347	45	23	26
8	SRQS-2646	Sunseeds	197	343	44	23	26
9	Daytona	Seminis	197	304	55	15	26
10	Indy	Seminis	175	290	54	11	26
11	Turbo	Seminis	174	290	53	12	26
12	Prolific	SakataSeed	166	313	42	19	26
13	XP-1825	Seminis	162	278	49	17	24
14	SRQS-2387	Sunseeds	156	302	37	29	23
15	SRQS-2645	Sunseeds	143	309	34	27	26
16	Panther(3727)	Sunseeds	142	220	49	23	26
17	XP-1824	Seminis	136	205	52	23	26
18	Revenue (4289)	HarrisMoran	135	217	54	13	24
19	Poinsett 76	CornellUniv	128	225	42	25	26
20	K7-605	SakataSeed	115	238	39	19	23
21	Ashley	Check	87	153	50	13	21
LSD (5%)			87	126	14	12	4
Mean			178	303	48	19	25
CV (%)			29	25	18	39	9

Correlation (Marketable yield with % culls) = -0.27*

Table 24. Stage 3 spring slicer trial - earliness data (cultigens ranked by weight of Fancy + No.1 grade fruit in harvests 1 and 2).

Rank	Cultivar or line	Seed source	Cumulative fruit weight and % of total weight (6 harvests) for harvest:									
			1		1-2		1-3		1-4		1-5	
			wt.	%	wt.	%	wt.	%	wt.	%	wt.	%
1	Thunder(1700)	Seminis	102	27	152	40	183	48	300	78	355	92
2	SRQS-2646	Sunseeds	100	30	144	42	168	50	313	91	327	95
3	GeneralLee(4440)	HarrisMoran	76	18	141	33	211	49	312	72	385	89
4	SRQS-2387	Sunseeds	52	17	127	41	169	55	237	74	280	93
5	SRQS-2389	Sunseeds	33	8	122	31	154	39	290	72	353	87
6	Greensleeves	HarrisMoran	87	24	113	32	135	38	258	72	323	91
7	Dasher II	Seminis	51	15	112	33	157	46	247	67	320	87
8	SRQS-2644	Sunseeds	49	14	105	31	149	42	271	80	319	93
9	SRQS-2645	Sunseeds	28	8	94	28	139	44	229	69	271	86
10	Daytona	Seminis	26	11	81	32	107	41	199	66	264	88
11	SCU-6601	SakataSeed	50	14	79	21	105	28	260	69	332	86
12	Indy	Seminis	22	8	67	24	81	28	192	68	237	82
13	XP-1825	Seminis	40	12	67	19	87	27	195	71	240	86
14	Turbo	Seminis	18	7	60	22	80	29	184	64	249	86
15	Revenue (4289)	HarrisMoran	20	9	60	28	86	39	151	70	196	90
16	Prolific	SakataSeed	23	7	59	18	85	27	182	58	265	84
17	K7-605	SakataSeed	24	10	56	23	81	34	148	62	195	82
18	XP-1824	Seminis	26	14	55	29	62	33	145	71	170	84
19	Poinsett 76	CornellUniv	22	9	55	23	72	31	173	76	198	88
20	Panther(3727)	Sunseeds	34	14	50	24	69	33	163	69	201	90
21	Ashley	Check	2	1	7	4	16	10	87	59	119	80
	LSD (5%)		33	11	53	18	63	19	99	18	108	8
	Mean		42	13	86	28	114	37	216	70	266	88
	CV (%)		48	49	38	40	34	32	28	15	25	5
Correlation (Marketable yield with yield in harvests 1-2)										= 0.72**		
Correlation (Marketable yield with % of yield in harvests 1-2)										= 0.17 ^{ns}		

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

Rank	Cultivar or line	Seed source	Average quality	Shape	Color	Seed- cell	Overall impression
1	Greensleeves	HarrisMoran	7.4	7	8	7	8
2	Thunder(1700)	Seminis	7.3	8	8	7	7
3	SRQS-2389	Sunseeds	7.3	7	8	7	8
4	Turbo	Seminis	7.3	7	8	8	7
5	GeneralLee(4440)	HarrisMoran	6.9	7	8	7	7
6	Daytona	Seminis	6.9	7	9	6	7
7	Revenue (4289)	HarrisMoran	6.8	6	8	7	7
8	SCU-6601	SakataSeed	6.8	7	8	5	8
9	Prolific	SakataSeed	6.8	7	8	6	8
10	SRQS-2645	Sunseeds	6.7	6	8	7	7
11	Indy	Seminis	6.7	6	9	7	6
12	SRQS-2646	Sunseeds	6.6	6	8	7	6
13	Dasher II	Seminis	6.6	6	8	7	6
14	XP-1825	Seminis	6.4	7	7	5	7
15	SRQS-2387	Sunseeds	6.4	6	8	7	6
16	Ashley	Check	6.3	7	7	7	5
17	SRQS-2644	Sunseeds	6.3	6	7	6	6
18	XP-1824	Seminis	6.1	7	8	6	6
19	Panther(3727)	Sunseeds	6.1	6	7	6	6
20	Poinsett 76	CornellUniv	5.8	6	6	5	6
21	K7-605	SakataSeed	5.2	5	8	5	6
LSD (5%)			1.1	2	1	2	2
Mean			6.6	7	8	7	7
CV (%)			10.2	16	10	14	15

^z Quality rated 1 to 9 (1 = poor, 5 = average, 9 = excellent; except color where 1 = white, 5 = medium green, 9 = very dark green).
Correlation (Marketable yield with average quality) = 0.38**

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

Rank	Cultivar or line	Seed source	Length (0.1")	Diameter (0.1")	Wt. (lb.)	Defect1°			Defect2°		
						2	4	6	2	4	6
1	Greensleeves	HarrisMoran	7.8	2.0	0.63	K	K	G	T	A	K
2	Thunder(1700)	Seminis	8.5	2.1	0.81	K	G	T	K	T	K
3	SRQS-2389	Sunseeds	8.3	2.2	0.86	D	K	D	K	K	K
4	Turbo	Seminis	8.8	2.1	0.89	K	K	T	H	K	K
5	GeneralLee(4440)	HarrisMoran	8.4	2.2	0.81	K	T	D	H	K	T
6	Daytona	Seminis	8.3	2.1	0.82	K	H	K	T	K	G
7	Revenue (4289)	HarrisMoran	8.3	2.1	0.75	T	K	H	K	T	T
8	SCU-6601	SakataSeed	7.9	2.1	0.81	T	K	H	H	K	K
9	Prolific	SakataSeed	7.9	2.1	0.92	H	G	K	T	K	K
10	SRQS-2645	Sunseeds	8.9	2.1	0.81	G	G	G	T	T	T
11	Indy	Seminis	7.9	2.1	0.76	H	H	H	T	K	K
12	SRQS-2646	Sunseeds	8.8	2.2	0.88	D	H	H	T	K	T
13	Dasher II	Seminis	8.4	2.1	0.85	H	K	H	C	T	K
14	XP-1825	Seminis	7.9	2.1	0.84	M	K	M	T	N	D
15	SRQS-2387	Sunseeds	8.0	2.2	0.77	T	H	H	N	T	K
16	Ashley	Check	7.3	2.1	0.67	H	M	M	K	I	A
17	SRQS-2644	Sunseeds	8.1	2.0	0.68	A	K	H	H	T	T
18	XP-1824	Seminis	7.7	2.0	0.61	T	H	H	H	T	S
19	Panther(3727)	Sunseeds	8.0	2.1	0.73	T	H	T	K	T	G
20	Poinsett 76	CornellUniv	7.5	2.1	0.68	H	H	O	T	K	H
21	K7-605	SakataSeed	7.9	2.0	0.75	H	T	T	T	K	C
LSD (5%)			0.8	0.2	0.23						
Mean			8.1	2.1	0.77						
CV (%)			6.6	7.1	17.80						

^z Defects were rated as follows (giving primary and secondary for each harvest):

A - wArty fruit	J - RiDGed	S - Separated carpels
B - Blossom end defects	K - Keep(excellent)	T - Tapered ends
C - Crooks excessive	L - Late maturity	U - Uniform green
D - Dogbone shape	M - Mottled fruit	V - Varicolor (dark stem end, light blossom end)
E - Early maturity	N - Nubs excessive	W - White fruit
F - Four celled	O - Offtype fruit	X - neCKS on fruit
G - lonG fruit	P - Placental hollows	Y - Yellow fruit
H - sHort fruit	Q -	Z - diSeased fruit
I - strIPed fruit	R - Reject (poor)	

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

Rank	Cultivar or line	Seed source	Weight loss (%) ^z	Rating (0 - 9) ^y		Firm- ness (lb.) ^x
				Shriv- eling	Rots & disease	
1	Greensleeves	HarrisMoran	13	3	1	15
2	Thunder(1700)	Seminis	19	4	0	16
3	SRQS-2389	Sunseeds	13	3	0	15
4	Turbo	Seminis	15	2	0	16
5	GeneralLee(4440	HarrisMoran	13	2	0	13
6	Daytona	Seminis	14	3	0	16
7	Revenue (4289)	HarrisMoran	15	3	0	14
8	SCU-6601	SakataSeed	14	3	0	15
9	Prolific	SakataSeed	14	2	0	13
10	SRQS-2645	Sunseeds	14	3	0	14
11	Indy	Seminis	14	2	0	15
12	SRQS-2646	Sunseeds	14	3	0	15
13	Dasher II	Seminis	15	4	0	16
14	XP-1825	Seminis	14	3	2	13
15	SRQS-2387	Sunseeds	13	3	1	14
16	Ashley	Check	16	3	1	14
17	SRQS-2644	Sunseeds	15	3	0	14
18	XP-1824	Seminis	15	3	0	16
19	Panther(3727)	Sunseeds	14	2	0	14
20	Poinsett 76	CornellUniv	14	3	1	14
21	K7-605	SakataSeed	13	3	0	15
LSD (5%)			3	2	1	2
Mean			14	3	0	15
CV (%)			14	44	155	9

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

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

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

Correlation (Weight loss with shriveling) = -0.03^{ns}

Correlation (Weight loss with firmness) = 0.32**

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

Rank	Cultivar or line	Seed source	Gyn. rating ^z	Early yield (cwt/A)	Earli- ness (%) ^x	Vine size ^w	Vine color ^w
1	SRQS-2644	Sunseeds	8	105	31	7	9
2	SRQS-2387	Sunseeds	8	127	41	7	8
3	Indy	Seminis	7	67	24	7	7
4	SRQS-2389	Sunseeds	7	122	31	7	8
5	Greensleeves	HarrisMoran	7	113	32	7	7
6	SRQS-2646	Sunseeds	7	144	42	5	7
7	Dasher II	Seminis	6	112	33	7	8
8	Revenue (4289)	HarrisMoran	6	60	28	5	7
9	SCU-6601	SakataSeed	6	79	21	7	8
10	Panther(3727)	Sunseeds	6	50	24	6	7
11	Prolific	SakataSeed	5	59	18	7	8
12	SRQS-2645	Sunseeds	5	94	28	6	8
13	Daytona	Seminis	5	81	32	6	7
14	K7-605	SakataSeed	5	56	23	6	7
15	GeneralLee(4440)	HarrisMoran	5	141	33	7	8
16	Turbo	Seminis	5	60	22	7	8
17	Thunder(1700)	Seminis	5	152	40	7	7
18	XP-1825	Seminis	4	67	19	6	7
19	Poinsett 76	CornellUniv	3	55	23	6	8
20	XP-1824	Seminis	3	55	29	5	7
21	Ashley	Check	2	7	4	5	6
LSD (5%)			3	53	18	2	1
Mean			5	86	28	6	8
CV (%)			31	38	40	17	32

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

^y Early yield is weight of Fancy+No.1 grade fruit produced in harvests 1 and 2.

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

^wVine size & color are rated 1 (small or yellow green) to 9 (large or dark green). Correlation (Marketable yield with gynoecious rating) = 0.22^{ns}

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

Rank	Cultivar or line	Seed source	Downy mildew
1	Revenue (4289)	HarrisMoran	1.0
2	SRQS-2644	Sunseeds	1.7
3	Dasher II	Seminis	1.7
4	SCU-6601	SakataSeed	1.7
5	Thunder(1700)	Seminis	1.7
6	SRQS-2387	Sunseeds	2.0
7	Indy	Seminis	2.0
8	Prolific	SakataSeed	2.0
9	Turbo	Seminis	2.0
10	XP-1825	Seminis	2.0
11	SRQS-2646	Sunseeds	2.3
12	Daytona	Seminis	2.3
13	GeneralLee(4440	HarrisMoran	2.3
14	Poinsett 76	CornellUniv	2.3
15	SRQS-2645	Sunseeds	2.7
16	K7-605	SakataSeed	2.7
17	XP-1824	Seminis	2.7
18	Greensleeves	HarrisMoran	3.0
19	Panther(3727)	Sunseeds	3.0
20	Ashley	Check	3.0
21	SRQS-2389	Sunseeds	3.7
LSD (5%)			2.0
Mean			2.3
CV (%)			55.1

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

Correlation (Marketable yield with disease rating) = -0.16^{ns}

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

Rank	Cultivar or line	Seed source	Simple weighted indexes		Average rank indexes	
			SWI1	SWI2	ARI1	ARI2
1	Thunder(1700)	Seminis	9.8	8.5	6.9	6.7
2	GeneralLee(4440)	HarrisMoran	9.4	8.1	8.0	7.9
3	SRQS-2389	Sunseeds	9.1	8.0	7.9	8.7
4	SRQS-2646	Sunseeds	8.7	7.6	9.4	8.8
5	Greensleeves	HarrisMoran	8.7	7.7	7.8	8.6
6	Dasher II	Seminis	8.7	7.7	9.7	9.4
7	SCU-6601	SakataSeed	8.4	7.6	9.1	9.3
8	SRQS-2644	Sunseeds	8.2	7.3	10.6	9.7
9	SRQS-2387	Sunseeds	7.9	7.0	11.2	10.2
10	Daytona	Seminis	7.8	7.1	10.1	10.7
11	Turbo	Seminis	7.2	6.6	9.1	9.7
12	Indy	Seminis	7.2	6.6	11.0	11.0
13	SRQS-2645	Sunseeds	7.2	6.4	12.1	12.0
14	Prolific	SakataSeed	7.0	6.4	11.0	11.3
15	XP-1825	Seminis	6.9	6.2	11.9	12.1
16	Revenue (4289)	HarrisMoran	6.6	6.1	10.6	10.4
17	XP-1824	Seminis	6.1	5.7	12.8	13.0
18	Panther(3727)	Sunseeds	6.0	5.6	14.5	14.8
19	Poinsett 76	CornellUniv	5.9	5.5	15.4	14.7
20	K7-605	SakataSeed	5.7	5.2	16.9	16.0
21	Ashley	Check	4.7	4.3	14.9	16.0
LSD (5%)			1.8	1.4	4.0	3.8
Mean			7.5	6.7	11.0	11.0
CV (%)			14.8	12.8	22.2	21.0

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

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

Correlation (Marketable yield with SWI1) = 0.95**

Correlation (Marketable yield with ARI1) = -0.65**

Summer (Stage 4) Slicing Cucumber Trial 1999

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 30 June, and harvested 3 times (Mondays and Thursdays) between 19 August through 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:

1	Daytona	Seminis
2	SCU-6601	Sakata Seed
3	Prolific	Sakata Seed
4	Poinsett 76	Cornell Univ
5	Revenue (4289)	Harris Moran
6	Panther (3727)	Sunseeds
7	Dasher II	Seminis
8	SRQS-2387	Sunseeds
9	Greensleeves	Harris Moran

Table 31. Stage 4 summer slicer trial - yield data (cultigens ranked by cwt/A of Fancy + No. 1 grade fruit).

Rank	Cultivar or line	Seed source	Yield (cwt/A)		Percent		Plants per A (X1000)
			Fancy +No.1	Market- able	Fancy +No.1	Percent culls	
1	K7-605	SakataSeed	167	289	49	15	25
2	Revenue (4289)	HarrisMoran	162	239	62	9	23
3	Panther(3727)	Sunseeds	151	229	53	20	25
4	SRQS-2387	Sunseeds	150	259	47	18	23
5	Daytona	Seminis	150	284	46	13	23
6	Greensleeves	HarrisMoran	148	248	51	15	24
7	SCU-6601	SakataSeed	145	262	42	23	26
8	Poinsett 76	CornellUniv	142	260	44	19	22
9	Prolific	SakataSeed	136	238	47	17	25
10	Turbo	Seminis	134	225	53	10	26
11	GeneralLee(4440	HarrisMoran	134	252	47	12	25
12	Dasher II	Seminis	130	244	46	15	26
13	SRQS-2644	Sunseeds	130	221	47	17	26
14	SRQS-2389	Sunseeds	126	232	45	19	26
15	XP-1825	Seminis	124	240	43	17	23
16	SRQS-2646	Sunseeds	124	208	49	18	25
17	XP-1824	Seminis	122	201	52	15	23
18	SRQS-2645	Sunseeds	107	195	44	19	24
19	Thunder(1700)	Seminis	106	199	42	22	24
20	Indy	Seminis	77	154	25	17	26
21	Ashley	Check	63	143	31	31	25
LSD (5%)			59	94	17	12	4
Mean			129	230	46	17	25
CV (%)			28	25	22	41	9

Correlation (Marketable yield with % culls) = -0.36**

Table 32. Stage 4 summer slicer trial - earliness data (cultigens ranked by weight of Fancy + No.1 grade fruit in harvests 1 and 2).

Rank	Cultivar or line	Seed source	Cumulative fruit weight and % of total weight (6 harvests) for harvest:									
			1		1-2		1-3		1-4		1-5	
			wt.	%	wt.	%	wt.	%	wt.	%	wt.	%
1	Prolific	SakataSeed	92	36	134	55	187	78	218	91	222	93
2	Dasher II	Seminis	111	45	123	51	147	62	209	84	224	92
3	Daytona	Seminis	81	28	120	42	164	57	244	86	275	97
4	Poinsett 76	CornellUniv	72	27	116	44	165	64	211	81	234	90
5	SRQS-2646	Sunseeds	91	48	109	57	126	63	187	90	192	93
6	SRQS-2645	Sunseeds	100	53	108	57	140	72	187	96	191	98
7	Revenue (4289)	HarrisMoran	69	27	106	43	160	67	204	86	213	90
8	SCU-6601	SakataSeed	73	29	106	41	168	63	237	90	248	95
9	Panther(3727)	Sunseeds	83	37	104	46	140	61	185	81	204	89
10	XP-1824	Seminis	35	19	95	56	138	73	163	84	176	92
11	Thunder(1700)	Seminis	79	42	95	49	109	55	147	73	174	86
12	SRQS-2389	Sunseeds	59	24	90	38	144	61	205	88	218	94
13	Greensleeves	HarrisMoran	57	24	86	35	132	52	197	79	227	91
14	SRQS-2387	Sunseeds	60	25	84	34	128	50	216	85	238	92
15	GeneralLee(4440)	HarrisMoran	56	24	81	34	151	61	210	84	224	89
16	XP-1825	Seminis	48	19	75	31	132	55	197	82	221	92
17	K7-605	SakataSeed	34	14	52	21	135	49	230	80	271	94
18	Ashley	Check	19	9	44	24	64	39	114	75	125	85
19	Indy	Seminis	25	15	41	22	93	42	126	56	136	60
20	SRQS-2644	Sunseeds	20	22	40	31	127	64	157	77	175	84
21	Turbo	Seminis	19	9	31	14	73	33	181	81	212	94
	LSD (5%)		62	24	62	25	73	23	85	23	88	22
	Mean		61	27	88	39	134	58	191	82	209	90
	CV (%)		61	53	43	38	33	24	27	17	25	15

Correlation (Marketable yield with yield in harvests 1-2) = 0.23^{ns}Correlation (Marketable yield with % of yield in harvests 1-2) = -0.18^{ns}

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

Rank	Cultivar or line	Seed source	Average quality	Shape	Color	Seed- cell	Overall impression
1	Greensleeves	HarrisMoran	7.7	8	7	8	8
2	Turbo	Seminis	7.4	8	7	7	7
3	SCU-6601	SakataSeed	7.4	7	7	7	8
4	Indy	Seminis	7.2	8	8	7	7
5	SRQS-2645	Sunseeds	7.2	7	7	6	8
6	Prolific	SakataSeed	7.1	8	7	7	7
7	SRQS-2644	Sunseeds	7.1	7	7	7	7
8	SRQS-2389	Sunseeds	7.1	8	7	8	6
9	GeneralLee (4440)	HarrisMoran	7.0	8	8	7	7
10	Daytona	Seminis	6.9	7	7	6	7
11	Revenue (4289)	HarrisMoran	6.9	7	7	7	6
12	Thunder (1700)	Seminis	6.9	7	7	7	7
13	Panther (3727)	Sunseeds	6.8	7	7	7	6
14	SRQS-2646	Sunseeds	6.8	7	7	7	6
15	Poinsett 76	CornellUniv	6.7	7	7	6	7
16	Dasher II	Seminis	6.6	8	7	6	6
17	K7-605	SakataSeed	6.6	8	8	6	6
18	XP-1824	Seminis	6.4	8	7	6	6
19	SRQS-2387	Sunseeds	6.4	8	7	6	6
20	XP-1825	Seminis	6.3	8	7	5	6
21	Ashley	Check	5.7	7	6	5	5
LSD (5%)			0.8	1	1	1	1
Mean			6.9	8	7	7	7
CV (%)			7.0	8	10	9	14

^z Quality rated 1 to 9 (1 = poor, 5 = average, 9 = excellent; except color where 1 = white, 5 = medium green, 9 = very dark green).
Correlation (Marketable yield with average quality) = 0.15^{ns}

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

Rank	Cultivar or line	Seed source	Length (0.1")	Diameter (0.1")	Wt. (lb.)	Defect1°			Defect2°		
						2	4	6	2	4	6
1	Greensleeves	HarrisMoran	8.2	2.1	0.80	T	T	H	K	K	K
2	Turbo	Seminis	8.3	2.2	0.87	K	M	K	K	K	G
3	SCU-6601	SakataSeed	8.7	2.2	0.93	K	M	K	M	K	M
4	Indy	Seminis	8.3	2.1	0.85	T	C	K	K	K	K
5	SRQS-2645	Sunseeds	9.1	2.3	0.95	K	H	G	T	K	K
6	Prolific	SakataSeed	9.0	2.3	0.96	M	M	H	K	K	O
7	SRQS-2644	Sunseeds	8.1	2.1	0.82	H	H	G	K	K	K
8	SRQS-2389	Sunseeds	8.7	2.3	1.03	W	H	K	H	W	H
9	GeneralLee (4440)	HarrisMoran	8.2	2.2	0.88	M	C	H	K	M	K
10	Daytona	Seminis	8.2	2.2	0.86	K	C	H	T	K	K
11	Revenue (4289)	HarrisMoran	8.4	2.2	0.92	H	M	D	K	H	T
12	Thunder (1700)	Seminis	8.5	2.2	0.86	T	C	K	K	K	H
13	Panther (3727)	Sunseeds	8.1	2.2	0.86	K	M	M	K	K	H
14	SRQS-2646	Sunseeds	8.1	2.3	0.93	H	H	H	D	M	C
15	Poinsett 76	CornellUniv	7.8	2.2	0.74	K	C	H	H	H	C
16	Dasher II	Seminis	8.3	2.3	0.89	H	H	H	K	T	M
17	K7-605	SakataSeed	8.1	2.2	0.77	H	H	T	K	M	G
18	XP-1824	Seminis	7.9	2.2	0.84	H	H	O	K	K	D
19	SRQS-2387	Sunseeds	8.0	2.3	0.89	H	H	H	K	K	T
20	XP-1825	Seminis	8.1	2.3	0.91	H	H	H	K	K	T
21	Ashley	Check	7.7	2.1	0.71	M	H	M	H	M	X
LSD (5%)			0.6	0.1	0.12						
Mean			8.2	2.2	0.86						
CV (%)			4.1	3.7	8.89						

^z Defects were rated as follows (giving primary and secondary for each harvest):

A - wArty fruit	J - RiDGed	S - Separated carpels
B - Blossom end defects	K - Keep(excellent)	T - Tapered ends
C - Crooks excessive	L - Late maturity	U - Uniform green
D - Dogbone shape	M - Mottled fruit	V - Varicolor (dark stem end, light blossom end)
E - Early maturity	N - Nubs excessive	W - White fruit
F - Four celled	O - Offtype fruit	X - neCKS on fruit
G - lonG fruit	P - Placental hollows	Y - Yellow fruit
H - sHort fruit	Q -	Z - diSeased fruit
I - strIPed fruit	R - Reject (poor)	

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

Rank	Cultivar or line	Seed source	Gyn. rating ^z	Early yield (cwt/A)	Earli- ness (%) ^x	Vine size ^w	Vine color ^w
1	SRQS-2387	Sunseeds	9	84	34	7	7
2	SRQS-2389	Sunseeds	9	90	38	6	7
3	SRQS-2646	Sunseeds	9	109	57	6	6
4	Panther(3727)	Sunseeds	9	104	46	6	7
5	Greensleeves	HarrisMoran	9	86	35	6	6
6	SCU-6601	SakataSeed	8	106	41	7	7
7	K7-605	SakataSeed	8	52	21	6	6
8	Dasher II	Seminis	8	123	51	7	7
9	GeneralLee(4440	HarrisMoran	8	81	34	7	7
10	Daytona	Seminis	8	120	42	7	7
11	Thunder(1700)	Seminis	8	95	49	7	6
12	Indy	Seminis	8	41	22	6	7
13	SRQS-2644	Sunseeds	8	40	31	6	8
14	Turbo	Seminis	7	31	14	6	7
15	Prolific	SakataSeed	7	134	55	8	7
16	SRQS-2645	Sunseeds	7	108	57	6	8
17	Revenue (4289)	HarrisMoran	7	106	43	5	6
18	XP-1824	Seminis	6	95	56	7	7
19	XP-1825	Seminis	5	75	31	5	7
20	Poinsett 76	CornellUniv	5	116	44	6	8
21	Ashley	Check	3	44	24	5	7
	LSD (5%)		2	53	18	1	1
	Mean		7	86	28	6	7
	CV (%)		17	38	40	12	11

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

^y Early yield is weight of Fancy+No.1 grade fruit produced in harvests 1 and 2.

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

^w Vine size & color are rated 1 (small or yellow green) to 9 (large or dark green).

Correlation (Marketable yield with gynoecious rating) = 0.17^{ns}

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

Rank	Cultivar or line	Seed source	Mean rating	Anthrac- nose	Downy mildew
1	SCU-6601	SakataSeed	1.0	1	2
2	Ashley	Check	1.0	1	2
3	XP-1825	Seminis	1.3	1	1
4	SRQS-2387	Sunseeds	1.3	1	1
5	Turbo	Seminis	1.3	1	1
6	Poinsett 76	CornellUniv	1.7	2	1
7	K7-605	SakataSeed	1.7	2	2
8	GeneralLee (4440)	HarrisMoran	2.0	2	2
9	Daytona	Seminis	2.3	2	3
10	Revenue (4289)	HarrisMoran	2.7	3	2
11	SRQS-2646	Sunseeds	2.7	3	3
12	Panther (3727)	Sunseeds	2.7	3	3
13	SRQS-2644	Sunseeds	3.3	3	2
14	Dasher II	Seminis	3.3	3	3
15	Thunder (1700)	Seminis	3.3	3	3
16	SRQS-2389	Sunseeds	3.3	3	3
17	Greensleeves	HarrisMoran	3.7	4	2
18	XP-1824	Seminis	3.7	4	2
19	Prolific	SakataSeed	3.7	4	3
20	Indy	Seminis	4.7	5	4
21	SRQS-2645	Sunseeds	5.0	5	3
LSD (5%)			2.7	3	2
Mean			2.7	3	2
CV (%)			61.6	62	47

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

Correlation (Marketable yield with anthracnose rating) = -0.47**

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

Rank	Cultivar or line	Seed source	Simple weighted indexes		Average rank indexes	
			SWI1	SWI2	ARI1	ARI2
1	Daytona	Seminis	7.7	6.9	9.9	9.3
2	SCU-6601	SakataSeed	7.7	6.9	7.7	7.9
3	Prolific	SakataSeed	7.6	6.8	9.3	9.4
4	Poinsett 76	CornellUniv	7.6	6.8	10.4	9.6
5	Revenue (4289)	HarrisMoran	7.5	6.8	9.8	9.9
6	Panther(3727)	Sunseeds	7.3	6.6	10.3	10.4
7	Dasher II	Seminis	7.3	6.5	11.2	10.8
8	SRQS-2387	Sunseeds	7.2	6.5	11.5	10.9
9	Greensleeves	HarrisMoran	7.0	6.5	8.3	9.4
10	SRQS-2646	Sunseeds	7.0	6.5	11.0	10.5
11	GeneralLee(4440)	HarrisMoran	7.0	6.4	10.3	10.3
12	K7-605	SakataSeed	6.9	6.4	11.1	10.5
13	SRQS-2389	Sunseeds	6.8	6.2	10.1	10.8
14	XP-1825	Seminis	6.7	6.1	12.0	11.7
15	XP-1824	Seminis	6.5	6.2	12.7	12.4
16	SRQS-2645	Sunseeds	6.5	6.1	11.7	12.1
17	Thunder(1700)	Seminis	6.5	6.0	12.2	12.2
18	Turbo	Seminis	6.3	5.9	9.9	11.0
19	SRQS-2644	Sunseeds	6.0	5.8	12.3	12.3
20	Indy	Seminis	5.1	4.8	13.1	14.1
21	Ashley	Check	5.1	4.7	16.3	15.4
LSD (5%)			1.6	1.2	4.2	4.1
Mean			6.8	6.3	11.0	11.0
CV (%)			14.6	12.2	23.3	22.8

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

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

Correlation (Marketable yield with SWI1) = 0.84**

Correlation (Marketable yield with ARI1) = -0.62**