



**UNIVERSITY OF
DELAWARE**

**BT
FRESH MARKET**

SWEET CORN

VARIETY

TRIAL

RESULTS

Emmalea Ernest and Gordon Johnson

**University of Delaware
Carvel Research and Education Center
16483 County Seat Highway
Georgetown, DE 19947**

2013

Table of Contents

Acknowledgements	1
Introduction.....	2
Materials and Methods	2
Discussion of Trial Results.....	4
2013 BT Fresh Market Sweet Corn Trials: Summary Table of Variety Information	7
Table 1. 2013 BT Fresh Market Sweet Corn Trials: Early Emergence for SE Varieties	8
Table 2. 2013 BT Fresh Market Sweet Corn Trials: Early Emergence for Supersweet Varieties.....	8
Table 3. 2013 BT Fresh Market Sweet Corn: Early SE Trial Plant Characteristics	9
Table 4. 2013 BT Fresh Market Sweet Corn: Early Supersweet Trial Plant Characteristics	9
Table 5. 2013 BT Fresh Market Sweet Corn: Early SE Trial Yield and Harvest Data	10
Table 6. 2013 BT Fresh Market Sweet Corn: Mid-Season SE Trial Yield and Harvest Data	10
Table 7. 2013 BT Fresh Market Sweet Corn: Early Supersweet Trial Yield and Harvest Data	11
Table 8. 2013 BT Fresh Market Sweet Corn: Mid-Season Supersweet Trial Yield and Harvest Data.....	11
Table 9. 2013 BT Fresh Market Sweet Corn: Early SE Trial Ear Characteristics	12
Table 10. 2013 BT Fresh Market Sweet Corn: Mid-Season SE Trial Ear Characteristics.....	12
Table 11. 2013 BT Fresh Market Sweet Corn: Early Supersweet Trial Ear Characteristics	13
Table 12. 2013 BT Fresh Market Sweet Corn: Mid-Season Supersweet Trial Ear Characteristics	14
Table 13. 2013 BT Fresh Market Sweet Corn: Informal Taste Ratings.....	15
Appendix A: Photographs of the SE Isolation Group Varieties in the 2013 BT Sweet Corn Trials in Order of Maturity	16
Appendix B: Photographs of the Supersweet Isolation Group Varieties in the 2013 BT Sweet Corn Trials in Order of Maturity.....	18
Appendix C: Weather Conditions During the 2013 Early and Mid Season BT Sweet Corn Trials.....	21

Acknowledgements

The authors express their thanks to:

Participating Seed Companies: Seminis and Syngenta Seeds, Inc.,

Seedway for donating seed of standard varieties.

Brian Hearn and the staff at the University of Delaware Research & Education Center, Georgetown, for their assistance in planting, spraying, and irrigating the trials.

Seasonal vegetable program workers Danielle Vanderhei, Caleb Yatuzis, Matthew Chaffinch and Melissa Bryfogle for their hard work planting, collecting data and harvesting the trials.

2013 University of Delaware BT Fresh Market Sweet Corn Variety Trials

Emmalea Ernest and Gordon Johnson
University of Delaware
Elbert N. and Ann V. Carvel Research & Education Center
16483 County Seat Highway
Georgetown, DE 19947
302-856-7303
emmalea@ude.edu, gcjohn@udel.edu

Introduction

In 2013 the UD Extension Vegetable and Fruit Research Program conducted trials of BT fresh market sweet corn varieties for yield and quality characteristics under Delaware growing conditions. Included in the trials were new Performance Series varieties from Seminis, which have the Cry1A.105 and Cry2AB genes for corn earworm, European corn borer and fall armyworm resistance as well as Roundup resistance; one new Attribute II variety with Cry1Ab and Vip3A genes for corn earworm, European corn borer, fall armyworm and black cutworm resistance and older Attribute varieties, which have the Cry1Ab gene for corn earworm and European corn borer resistance. Several non-transgenic varieties, representative of each kernel color and isolation group were included as standard varieties.

Similar trials of various fresh market sweet corn colors and isolation groups have been conducted in past years and are archived at: <http://extension.udel.edu/ag/vegetable-fruit-resources/vegetable-small-fruits-program/>.

Supersweet and sugary enhancer (SE) isolation group varieties were trialed. Details for trial planting, management and harvest procedures are in the Materials and Methods section. Each trial is analyzed as a separate experiment and results are reported as such.

Materials and Methods

Trials were located at the University of Delaware Research Farm in Georgetown, Delaware. Supersweet and SE varieties were isolated from one another by planting in separate locations, although trials were planted on the same dates. The early trials were planted on April 17 with the supersweet trial in Field 1-C and the SE trial in field 6-B. The mid-season trials were planted on May 17 with the supersweet trial in Field 1-E and the SE trial in Field 6-B. Plots consisted of three rows, 50 ft in length; the center row was designated for harvest. Plots were arranged in a randomized complete block design with four replications. Trials were planted with a Monosem vacuum planter with 30 inch between row spacing and 9 inch in row spacing (23,231 plants per acre). Fields were fertilized with potassium (0-0-60) at a rate of 110 lb/A before planting. Starter fertilizer (20-10-0-1) at a rate of 15 gallons per acre was used at planting. Plots were sidedressed twice with 30% UAN at a rate of 30 gallons per acre or 98 lbs/A of N. For weed control a preemergence herbicide application of atrazine at 1 qt/A + Dual II Magnum (S-metolachlor) at 1 pt/A + Callisto (mesotrione) at 3 fl oz/A, was made to each plot after planting and each plot was cultivated twice. For insect control, each plot received six applications of Besiege (lambda-cyhalothrin + chlorantraniliprole) at 10 oz/A. The trials were overhead irrigated with a traveling linear irrigation system when needed.

Varieties Entered in the 2013 BT Fresh Market Supersweet Sweet Corn Variety Trials

Variety	Transgenic Traits*	Color	Isolation Group	Seed Company
Temptation	none	Bicolor	se	Seminis
Temptation II	Performance	Bicolor	se	Seminis
BC 0805	Attribute	Bicolor	se	Syngenta
BC 0822	Attribute	Bicolor	se	Syngenta
Serendipity	none	Bicolor	se	Syngenta
Avalon	none	White	se	Syngenta
WH 0809	Attribute	White	se	Syngenta
BSS 0982	Attribute	Bicolor	sh2	Syngenta
BSS 0977	Attribute	Bicolor	sh2	Syngenta
Obsession	none	Bicolor	sh2	Seminis
EX08767143	none	Bicolor	sh2	Seminis
Obsession II	Performance	Bicolor	sh2	Seminis
SV 9010 SA	Performance	Bicolor	sh2	Seminis
WSS 0987	Attribute	White	sh2	Syngenta
Munition	none	White	sh2	Syngenta
Protector	Attribute II	Yellow	sh2	Syngenta
Vision	none	Yellow	sh2	IFSI (donated by Seedway)
Garrison	none	Yellow	sh2	Syngenta

* Performance Series varieties have the Cry1A.105 and Cry2AB genes for corn earworm, ECB and fall armyworm resistance as well as Roundup resistance;

Attribute varieties have the Cry1Ab gene for corn earworm and European corn borer resistance

Attribute II varieties have Cry1Ab and Vip3A genes for corn earworm, ECB, fall armyworm and black cutworm resistance.

Data Collection Procedures

Counts of all emerged plants in all rows were made on May 14 (27 DAP) for the early trials and on June 11 (25 DAP) for the mid-season trials.

Before harvest a thirty-foot section of the center row of the plot was flagged and designated for harvest. The plants in the flagged section were counted and are reported as final harvest section stands.

On June 27 (71 DAP) the following measurements were taken for eight plants from the harvest section in each replication in the early trials: height of the plant, height of the first ear, and number of tillers. These measurements were not taken for the mid-season trials.

Ears were hand harvested from the thirty-foot harvest section. Ease of picking was rated on a 1 (easy) to 4 (hard) scale at that time. Ears were counted and weighed in-husk. The following measurements were taken for a sample of five ears from each plot: number of flag leaves longer than 5 cm, length of the longest flag leaf, tip cover (distance from top of ear to end of husk when

half husked or length of ear protruding from husk reported as a negative number), ear length, ear diameter, tip fill (distance from end of ear to first well filled kernels), and number of rows.

Flavor of the raw corn was informally evaluated at the time of harvest.

Discussion of Trial Results

Rainfall was abundant in May, June and July of 2013, with a total of 21 inches of rain falling during the time the April 17 planted trials were in the field and 18 inches falling during the time the May 17 planted trials were in the field. Drought stress was not a factor in any of the trials this year. The only major stress on the trials was nitrogen deficiency from excessive leaching rains.

Yield of SE Varieties

The early season trial of seven sugary enhancer (SE) varieties was planted into Rosedale loamy sand, 0 to 2 percent slopes on April 17, 2013. Soil temperature during the first 14 days after planting averaged 58°F at a two inch depth under sod, with daily maximum temperatures averaging 62°F and daily minimum temperatures averaging 56°F. Emergence at 27 days after planting ranged from 95% to 82% and there were statistically significant differences in emergence between the varieties (Table 1). The varieties with the highest percent emergence were Temptation and Temptation II, although Serendipity also had 90% emergence in this trial.

In the early season trial there were no significant yield differences between the varieties in terms of ears/acre (Table 5) or pounds/acre of ears in the husk.

The mid-season trial of seven SE varieties was planted into Rosedale loamy sand, 0 to 2 percent slopes on May 17, 2013. Soil temperature during the first 14 days after planting averaged 68°F at a two inch depth under sod, with daily maximum temperatures averaging 72°F and daily minimum temperatures averaging 65°F. Emergence at 25 days after planting ranged from 98% to 94% and although there were statistically significant differences in emergence between the varieties (Table 1) stand establishment for all varieties was excellent.

In the mid-season trial there were no significant differences between the varieties in terms of ears/acre (Table 6). In terms of pounds of ears in the husk the highest yielding varieties were Serendipity and BC 0805. The yield of Temptation was not significantly higher than Temptation II in terms of pounds per acre.

Yield of Supersweet Varieties

The early season trial of eleven supersweet varieties was planted into Pepperbox loamy sand, 0 to 2 percent slopes on April 17, 2013. Soil temperature during the first 14 days after planting averaged 58°F at a two inch depth under sod, with daily maximum temperatures averaging 62°F and daily minimum temperatures averaging 56°F. Emergence at 27 days after planting ranged from 97% to 82% and there were statistically significant differences in emergence between the varieties (Table 2). The varieties with the highest percent emergence were BSS 0977, Obsession and Garrison. EX08767143, SV 9010 SA, and WSS 0987 also had over 90% emergence in this trial.

The highest yielding varieties in the early supersweet trial were EX08767143, BSS 0977, Obsession and Munition in terms of ears per acre (Table 7). In terms of pounds of ears in the

husk the highest yielding varieties were EX08767143, SV 9010 SA and Obsession. The yields of Obsession and Obsession II were not significantly different from one another either in terms of ears per acre or pounds per acre.

The mid-season trial of eleven supersweet varieties was planted into Pepperbox loamy sand, 0 to 2 percent slopes on May 17, 2013. Soil temperature during the first 14 days after planting averaged 68°F at a two inch depth under sod, with daily maximum temperatures averaging 72°F and daily minimum temperatures averaging 65°F. Emergence at 25 days after planting ranged from 97% to 90% and there were statistically significant differences in emergence between the varieties (Table 2). There were statistically significant differences in emergence between the varieties; however with more ideal soil temperatures there was less separation between the varieties than in the early trial and all varieties had 90% emergence or better.

In the mid-season trial there were no significant differences between the varieties in terms of ears/acre (Table 8). In terms of pounds of ears in the husk the highest yielding varieties were EX08767143, Obsession, Garrison, SV 9010 SA, Protector and BSS 0982. The yield of Obsession was significantly higher than Obsession II in terms of pounds per acre.

Ear and Plant Characteristics

There were significant differences in plant height, height of the first ear, and tillers per plant between varieties in the early plantings (Table 3 & Table 4). WH 0809, Temptation II, Temptation and Avalon were the tallest SE varieties and Serendipity, and BC 0822 were the shortest. WSS 0987 was the tallest supersweet variety and Obsession II and Vision were the shortest. Plant height, ear height and tillering were not evaluated in the mid-season trials.

For the SE varieties there were significant differences between the varieties for all of the ear characteristics evaluated except ease of picking in the mid-season trial (Table 9 & Table 10). BC 0822 was rated as hard to pick in the early trial, but none of the other varieties was rated as especially hard to pick.

In comparing Temptation to Temptation II, the varieties had statistically equal ease of picking, number of flag leaves, flag length and ear length in both the early and mid-season trials. In both trials Temptation II had significantly higher tip cover, a desirable characteristic. Ear diameter was significantly higher for Temptation II in the early trial, but Temptation had a significantly higher diameter in the mid-season trial. Tip fill was significantly better for Temptation II in the early trial but not significantly different in the mid-season trial (both had rather bad tip fill). In the early trial Temptation had a significantly higher number of rows, but there was no significant difference between the two varieties in the mid-season trial. The appearance of the ears from both varieties is very similar, see photos in Appendix A.

For the supersweet varieties there were significant differences between the varieties for all of the ear characteristics evaluated except ease of picking (Table 11 & Table 12). None of the varieties was rated as hard to pick.

In comparing Obsession and Obsession II, the varieties had statistically equal tip cover and number of rows in both the early and mid-season trials. In both trials Obsession II had significantly shorter ears. The number of flag leaves and flag leaf length were significantly shorter for Obsession II in the early trial but statistically equal in the mid-season trial. Ear

diameter was statistically equal in the early trial but significantly higher for Obsession II in the mid-season trial. Tip fill was statistically equal in the early trial but significantly worse for Obsession II in the mid-season trial. The appearance of the ears from both varieties is very similar, see photos in Appendix B.

2013 BT Fresh Market Sweet Corn Trials: Summary Table of Variety Information

	Avg. DTH	% Early Emergence	Ears/A			Tip Cover	Tip Fill	Taste Rating
			Early	Mid	Average			
Avalon	82.0	84.9	16263	22652	19458	4.7	0.4	Below Average
WH 0809*	83.0	88.8	18295	20183	19239	6.0	1.9	Below Average
Serendipity	81.0	90.4	16553	20183	18368	6.4	1.8	Good
Temptation	74.0	93.9	19457	16698	18078	3.7	3.5	Good
BC 0822*	83.0	82.3	15537	19892	17715	6.2	1.8	Excellent
BC 0805*	81.0	88.7	16553	18586	17570	6.3	0.8	Excellent
Temptation II**	74.0	94.5	17424	15827	16626	5.1	2.5	Good

	Avg. DTH	% Early Emergence	Ears/A			Tip Cover	Tip Fill	Taste Rating
			Early	Mid	Average			
Obsession	80.5	95.9	22071	22942	22507	1.6	0.6	Good
BSS 0977*	83.5	96.9	22361	22651	22506	3.4	0.2	Below Average
EX08767143	80.5	92.3	23813	21054	22434	1.2	1.3	Good
Garrison	81.0	95.0	20183	21199	20691	3.2	0.6	Below Average
Munition	83.0	87.3	20619	20037	20328	2.1	0.1	Below Average
WSS 0987*	82.0	90.5	16843	23377	20110	3.1	0.2	Good
Obsession II**	80.5	85.4	19457	20473	19965	1.3	1.0	Good
SV 9010 SA**	81.0	91.0	18731	19893	19312	2.2	1.4	Good
BSS 0982*	78.0	85.1	17279	19167	18223	1.9	0.4	Good
Protector**	82.0	81.7	15101	19602	17352	3.7	0.9	Below Average
Vision	74.0	89.6	14810	19312	17061	2.8	0.9	Excellent

* Attribute Varieties

** Attribute II and Performance Series Varieties

Cell Highlighting Color Key

Green=highest ranked varieties for a trait

Yellow-Green=above average ranking for a trait

Yellow=average ranking for a trait

Orange=below average ranking for trait

Red=lowest ranked varieties for trait

2013 University of Delaware BT Fresh Market Supersweet Sweet Corn Trials

Table 1. 2013 BT Fresh Market Sweet Corn Trials: Early Emergence for SE Varieties

Variety	Early Trial Emergence 27 DAP	Mid-Season Trial Emergence 25 DAP
Temptation II	94.5 a	97.2 ab
Temptation	93.9 ab	98.3 a
Serendipity	90.4 bc	94.8 bcd
WH 0809	88.8 cd	94.0 cd
BC 0805	88.7 cd	93.5 d
Avalon	84.9 de	96.3 abc
BC 0822	82.3 e	97.5 a
<i>p-value</i>	<0.0001	0.0016
<i>LSD_{0.05}</i>	3.85	2.61

Table 2. 2013 BT Fresh Market Sweet Corn Trials: Early Emergence for Supersweet Varieties

Variety	Early Trial Emergence 27 DAP	Mid-Season Trial Emergence 25 DAP
BSS 0977	96.9 a	95.9 ab
Obsession	95.9 a	97.1 a
Garrison	95.0 ab	95.6 ab
EX08767143	92.3 bc	96.3 ab
SV 9010 SA	91.0 c	93.7 bcd
WSS 0987	90.5 cd	96.3 ab
Vision	89.6 cd	94.3 abc
Munition	87.3 de	94.5 abc
Obsession II	85.4 e	90.8 de
BSS 0982	85.1 ef	91.7 cde
Protector	81.7 f	90.0 e
<i>p-value</i>	<0.0001	<0.0001
<i>LSD_{0.05}</i>	3.50	3.04

Table 3. 2013 BT Fresh Market Sweet Corn: Early SE Trial Plant Characteristics

Variety	Plant Height (ft)	Height of 1st Ear (ft)	Tillers/Plant
WH 0809	5.9 a	1.5 a	0.81 a
Temptation II	5.8 a	1.4 ab	0.25 b
Temptation	5.8 ab	1.3 b	0.13 b
Avalon	5.7 ab	1.3 b	0.75 a
BC 0805	5.6 b	1.3 b	0.78 a
Serendipity	5.2 c	1.0 c	0.63 a
BC 0822	5.0 c	1.0 c	0.13 b
<i>p-value</i>	<i><0.0001</i>	<i><0.0001</i>	<i><0.0001</i>
LSD	0.21	0.14	0.365

Table 4. 2013 BT Fresh Market Sweet Corn: Early Supersweet Trial Plant Characteristics

Variety	Plant Height (ft)	Height of 1st Ear (ft)	Tillers/Plant
WSS 0987	6.5 a	1.7 a	0.09 d
BSS 0977	6.1 b	1.5 ab	0.09 d
EX08767143	6.1 bc	1.5 b	0.19 cd
Garrison	5.9 cd	1.5 b	0.28 abcd
Munition	5.8 d	1.5 b	0.13 d
Obsession	5.8 de	1.5 b	0.13 d
SV 9010 SA	5.7 def	1.4 b	0.53 a
BSS 0982	5.6 efg	1.3 c	0.47 ab
Protector	5.5 fg	1.5 b	0.25 bcd
Obsession II	5.5 g	1.4 b	0.41 abc
Vision	5.4 g	1.1 d	0.13 d
<i>p-value</i>	<i><0.0001</i>	<i><0.0001</i>	<i>0.0025</i>
LSD	0.23	0.13	0.264

Table 5. 2013 BT Fresh Market Sweet Corn: Early SE Trial Yield and Harvest Data

Variety	Days to Harvest	# Ears per Acre	Dozen Ears per Acre	Unhusked Wt (lbs/A)	Ears per Plant
Temptation	82	19457 a	1621 a	11938 a	0.86 a
WH 0809	91	18295 a	1525 a	12206 a	0.81 a
Temptation II	82	17424 a	1452 a	9909 a	0.76 a
BC 0805	89	16553 a	1379 a	11050 a	0.72 a
Serendipity	89	16553 a	1379 a	10205 a	0.71 a
Avalon	89	16263 a	1355 a	11622 a	0.77 a
BC 0822	91	15537 a	1295 a	9714 a	0.78 a
<i>p-value</i>		0.4448	0.4448	0.3664	0.5754
<i>LSD</i>		NA	NA	NA	NA

Table 6. 2013 BT Fresh Market Sweet Corn: Mid-Season SE Trial Yield and Harvest Data

Variety	Days to Harvest	# Ears per Acre	Dozen Ears per Acre	Unhusked Wt (lbs/A)	Ears per Plant
Avalon	75	22652 a	1888 a	6051 cd	1.00 a
WH 0809	75	20183 a	1682 a	5239 d	0.92 a
Serendipity	73	20183 a	1682 a	11160 a	0.92 a
BC 0822	75	19892 a	1658 a	4574 d	0.86 ab
BC 0805	73	18586 a	1549 a	10684 a	0.84 ab
Temptation	66	16698 a	1392 a	8410 b	0.73 b
Temptation II	66	15827 a	1319 a	7484 bc	0.68 b
<i>p-value</i>		0.0585	0.0585	<0.0001	0.0282
<i>LSD</i>		NA	NA	2128	0.1872

Table 7. 2013 BT Fresh Market Sweet Corn: Early Supersweet Trial Yield and Harvest Data

Variety	Days to Harvest	# Ears per Acre	Dozen Ears per Acre	Unhusked Wt (lbs/A)	Ears per Plant
EX08767143	91	23813 a	1984 a	17540 a	0.98 a
BSS 0977	92	22361 ab	1863 ab	14718 bcd	0.97 a
Obsession	91	22071 abc	1839 abc	15577 abc	0.84 abc
Munition	91	20619 abcd	1718 abcd	12824 de	0.98 a
Garrison	92	20183 bcde	1682 bcde	14770 bcd	0.89 ab
Obsession II	91	19457 bcde	1621 bcde	13782 bcd	0.83 abc
SV 9010 SA	92	18731 cde	1561 cde	15827 ab	0.89 abc
BSS 0982	89	17279 def	1440 def	13260 cd	0.82 abc
WSS 0987	89	16843 ef	1404 ef	10072 f	0.73 bc
Protector	91	15101 f	1258 f	10382 f	0.73 bc
Vision	82	14810 f	1234 f	10603 ef	0.71 c
<i>p-value</i>		<i><0.0001</i>	<i><0.0001</i>	<i><0.0001</i>	<i>0.0138</i>
<i>LSD</i>		<i>3492</i>	<i>291</i>	<i>2442</i>	<i>0.174</i>

Table 8. 2013 BT Fresh Market Sweet Corn: Mid-Season Supersweet Trial Yield and Harvest Data

Variety	Days to Harvest	# Ears per Acre	Dozen Ears per Acre	Unhusked Wt (lbs/A)	Ears per Plant
WSS 0987	75	23377 a	1948 a	6085 d	1.04 a
Obsession	70	22942 a	1912 a	13266 ab	1.00 a
BSS 0977	75	22651 a	1888 a	5914 d	1.01 a
Garrison	70	21199 a	1767 a	13063 ab	0.94 a
EX08767143	70	21054 a	1755 a	13451 a	0.93 a
Obsession II	70	20473 a	1706 a	10791 c	0.98 a
Munition	75	20037 a	1670 a	4954 d	0.91 a
SV 9010 SA	70	19893 a	1658 a	12339 abc	0.92 a
Protector	73	19602 a	1634 a	12688 abc	0.94 a
Vision	66	19312 a	1609 a	11358 bc	0.88 a
BSS 0982	67	19167 a	1597 a	11443 abc	0.92 a
<i>p-value</i>		<i>0.1705</i>	<i>0.1705</i>	<i><0.0001</i>	<i>0.7081</i>
<i>LSD</i>		<i>NA</i>	<i>NA</i>	<i>2036</i>	<i>NA</i>

Table 9. 2013 BT Fresh Market Sweet Corn: Early SE Trial Ear Characteristics*

Variety	Ease of Picking	# of Flag Leaves	Length of Longest Flag (cm)	Tip Cover (cm)	Ear Length (cm)	Ear Diameter (cm)	Tip Fill (cm)	# of Rows
Avalon	2.0 c	2.3 b	9.1 b	5.1 c	21.1 a	3.8 b	0.6 cd	16.1 a
BC 0805	2.5 bc	2.0 b	7.5 b	7.2 a	20.5 ab	4.0 b	0.2 d	14.3 cd
WH 0809	2.5 bc	2.1 b	7.6 b	5.8 bc	20.0 bc	4.2 a	2.2 b	15.5 ab
Serendipity	3.3 ab	2.7 b	7.6 b	6.6 ab	19.7 c	3.8 b	0.7 cd	14.1 cd
BC 0822	4.0 a	4.5 a	15.0 a	6.7 a	18.3 d	3.9 b	1.3 bcd	12.9 e
Temptation II	2.5 bc	5.5 a	14.0 a	5.5 c	16.9 e	4.3 a	1.4 bc	14.0 d
Temptation	2.8 bc	4.8 a	14.4 a	3.9 d	16.8 e	4.0 b	3.4 a	15.0 bc
<i>p-value</i>	0.002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<i>LSD</i>	0.82	1.0303	--	0.7409	0.6702	0.1860	1.0731	1.010

Table 10. 2013 BT Fresh Market Sweet Corn: Mid-Season SE Trial Ear Characteristics*

Variety	Ease of Picking	# of Flag Leaves	Length of Longest Flag (cm)	Tip Cover (cm)	Ear Length (cm)	Ear Diameter (cm)	Tip Fill (cm)	# of Rows
Avalon	2.0 a	1.6 d	8.1 b	4.3 bc	20.7 a	4.1 a	0.3 e	15.9 a
BC 0805	2.5 a	2.8 c	8.7 b	5.5 a	20.6 a	4.1 a	1.3 d	15.4 a
WH 0809	2.3 a	2.7 c	8.5 b	6.1 a	20.0 ab	4.1 a	1.7 cd	15.4 a
Serendipity	2.5 a	1.6 d	8.5 b	6.2 a	19.5 b	4.0 a	2.9 ab	16.0 a
BC 0822	2.8 a	3.9 b	14.9 a	5.6 a	18.4 c	4.1 a	2.4 bc	13.7 b
Temptation	2.3 a	5.4 a	14.5 a	3.5 c	17.9 cd	4.0 a	3.7 a	15.8 a
Temptation II	2.0 a	5.4 a	13.7 a	4.6 b	17.4 d	3.8 b	3.7 a	15.9 a
<i>p-value</i>	0.2888	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<i>LSD</i>	NA	0.9966	--	0.7554	0.7711	0.1483	0.9511	0.9245

* Ease of picking rated on a 1 (easy) to 4 (hard) scale; number of flag leaves longer than 5 cm; tip cover measured as distance from tip of ear to end of husk when half husked or length of ear protruding from husk reported as a negative number; tip fill measured as distance from tip of ear to first well filled kernels (a lower number indicates better tip fill).

Table 11. 2013 BT Fresh Market Sweet Corn: Early Supersweet Trial Ear Characteristics*

Variety	Ease of Picking	# of Flag Leaves	Length of Longest Flag (cm)	Tip Cover (cm)	Ear Length (cm)	Ear Diameter (cm)	Tip Fill (cm)	# of Rows
SV 9010 SA	1.3 a	5.6 cd	17.9 bc	2.2 cde	21.8 a	4.6 a	2.0 a	17.5 ab
Obsession	1.8 a	6.0 bc	16.9 bc	1.2 f	20.4 b	4.0 cd	0.9 bcd	17.9 a
EX08767143	2.3 a	7.3 a	15.0 cd	1.5 ef	19.9 bc	4.1 bc	1.0 bcd	16.7 bcd
BSS 0982	2.3 a	6.7 ab	30.4 a	2.7 bc	19.8 bc	4.5 a	0.4 de	16.1 cde
Garrison	1.8 a	4.3 e	16.5 bc	2.5 cd	19.8 c	4.6 a	1.2 bc	17.9 a
Protector	2.0 a	3.2 f	14.7 cd	2.5 cd	19.7 c	4.2 bc	1.5 ab	15.7 de
Obsession II	1.8 a	4.8 de	11.7 d	1.2 f	19.5 c	4.2 bc	0.6 cde	17.3 ab
BSS 0977	1.8 a	4.7 de	17.5 bc	3.3 ab	18.9 d	4.2 bc	0.4 de	16.7 bcd
Vision	1.8 a	4.9 de	19.6 b	3.5 a	18.8 d	4.1 bcd	0.7 cde	16.6 bcd
Munition	2.3 a	5.7 bcd	14.6 cd	2.0 de	18.8 d	3.9 d	0.2 e	17.1 abc
WSS 0987	2.5 a	3.8 ef	15.2 cd	3.3 ab	17.5 e	4.2 b	0.1 e	15.4 e
<i>p-value</i>	0.1206	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<i>LSD</i>	NA	1.05	--	0.7182	0.5670	0.1822	0.6850	1.014

* Ease of picking rated on a 1 (easy) to 4 (hard) scale; number of flag leaves longer than 5 cm; tip cover measured as distance from tip of ear to end of husk when half husked or length of ear protruding from husk reported as a negative number; tip fill measured as distance from tip of ear to first well filled kernels (a lower number indicates better tip fill).

Table 12. 2013 BT Fresh Market Sweet Corn: Mid-Season Supersweet Trial Ear Characteristics*

Variety	Ease of Picking	# of Flag Leaves	Length of Longest Flag (cm)	Tip Cover (cm)	Ear Length (cm)	Ear Diameter (cm)	Tip Fill (cm)	# of Rows
EX08767143	2.3 a	5.3 b	15.3 f	0.9 f	20.6 a	4.2 cd	1.6 a	16.7 ab
SV 9010 SA	1.5 a	5.2 b	16.8 ef	2.3 cd	20.4 ab	4.1 de	0.8 bc	16.2 bcd
Obsession	2.5 a	3.9 de	16.8 ef	2.1 de	20.0 b	3.9 e	0.4 cd	15.7 cde
BSS 0982	2.3 a	6.9 a	34.0 a	1.0 f	19.9 bc	3.9 e	0.4 cd	16.1 bcde
Obsession II	2.3 a	3.4 ef	15.0 f	1.5 ef	19.4 c	4.2 cd	1.4 ab	15.8 bcde
Vision	2.0 a	4.6 bcd	23.3 bc	2.1 de	18.8 d	4.0 e	1.0 ab	16.6 abc
Protector	2.3 a	2.9 f	21.6 bcd	5.0 a	18.6 de	4.4 a	0.4 cd	15.2 ef
BSS 0977	2.5 a	4.1 cde	19.6 de	3.6 b	18.6 de	4.2 bc	0.0 d	15.6 de
Munition	2.0 a	3.7 def	17.8 def	2.2 d	18.4 de	4.0 de	0.0 d	15.3 def
WSS 0987	1.8 a	4.6 bcd	19.6 cde	2.8 c	18.2 de	4.4 ab	0.2 d	14.5 f
Garrison	1.8 a	5.0 bc	23.5 b	3.9 b	18.1 e	4.2 cd	0.1 d	17.4 a
<i>p-value</i>	0.4765	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<i>LSD</i>	NA	0.8747	--	0.6070	0.5616	0.1552	0.5725	0.9335

* Ease of picking rated on a 1 (easy) to 4 (hard) scale; number of flag leaves longer than 5 cm; tip cover measured as distance from tip of ear to end of husk when half husked or length of ear protruding from husk reported as a negative number; tip fill measured as distance from tip of ear to first well filled kernels (a lower number indicates better tip fill).

Table 13. 2013 BT Fresh Market Sweet Corn: Informal Taste Ratings

Variety	Transgenic Traits*	Color	Isolation Group	Taste Rating
BC 0805	Attribute	Bicolor	se	Exceptional
BC 0822	Attribute	Bicolor	se	Exceptional
Vision	none	Yellow	sh2	Exceptional
BSS 0982	Attribute	Bicolor	sh2	Good
EX08767143	none	Bicolor	sh2	Good
Obsession	none	Bicolor	sh2	Good
Obsession II	Performance	Bicolor	sh2	Good
Serendipity	none	Bicolor	se	Good
SV 9010 SA	Performance	Bicolor	sh2	Good
Temptation	none	Bicolor	se	Good
Temptation II	Performance	Bicolor	se	Good
WSS 0987	Attribute	White	sh2	Good
Protector	Attribute II	Yellow	sh2	Below Average
Avalon	none	White	se	Below Average
WH 0809	Attribute	White	se	Below Average
Munition	none	White	sh2	Below Average
BSS 0977	Attribute	Bicolor	sh2	Below Average
Garrison	none	Yellow	sh2	Below Average

* Performance Series varieties have the Cry1A.105 and Cry2AB genes for corn earworm, ECB and fall armyworm resistance as well as Roundup resistance;

Attribute varieties have the Cry1Ab gene for corn earworm and European corn borer resistance

Attribute II varieties have Cry1Ab and Vip3A genes for corn earworm, ECB, fall armyworm and black cutworm resistance.

Appendix A: Photographs of the SE Isolation Group Varieties in the 2013 BT Sweet Corn Trials in Order of Maturity



Temptation
Seminis Not Transgenic



Temptation II
Seminis Performance Series



BC 0805
Syngenta Attribute



Serendipity
Syngenta Not Transgenic



Avalon
Syngenta Not Transgenic



BC 0822
Syngenta Attribute



WH 0809
Syngenta Attribute

Appendix B: Photographs of the Supersweet Isolation Group Varieties in the 2013 BT Sweet Corn Trials in Order of Maturity



IFSI **Vision**
Not Transgenic



Syngenta **BSS 0982**
Attribute



Seminis **Obsession**
Not Transgenic



Seminis **Obsession II**
Performance Series



EX08767143
Seminis Not Transgenic



SV 9010 SA
Seminis Performance Series



Garrison
Syngenta Not Transgenic



Protector
Syngenta Attribute II



WSS 0987
Syngenta Attribute



Munition
Syngenta Not Transgenic



BSS 0977
Syngenta Attribute

Appendix C: Weather Conditions During the 2013 Early and Mid Season BT Sweet Corn Trials

Weather Data from DEOS Weather Station (<http://www.deos.udel.edu/index.html>)
at the Carvel Research and Education Center, Georgetown, DE

Date	Days After Planting		Max Temp (°F)	Min Temp (°F)	Rainfall (inches)	Max Soil Temp (°F)	Min Soil Temp (°F)
	Early Trial	Mid- Season Trial					
17-Apr	0		74.0	55.1	0	65.4	58.4
18-Apr	1		73.9	54.2	0	66.5	59.4
19-Apr	2		79.5	59.6	0.46	65.9	60.7
20-Apr	3		64.4	46.2	0.62	64.6	58.4
21-Apr	4		51.3	35.0	0	61.6	54.0
22-Apr	5		51.4	31.1	0	57.0	52.3
23-Apr	6		55.0	44.9	0	55.9	53.0
24-Apr	7		72.0	37.8	0	60.7	51.6
25-Apr	8		62.7	42.6	0	62.4	55.2
26-Apr	9		66.0	37.4	0	62.7	53.3
27-Apr	10		66.9	37.5	0	64.1	53.7
28-Apr	11		68.3	37.8	0	61.8	54.1
29-Apr	12		57.5	53.1	1.13	58.7	57.4
30-Apr	13		57.3	50.5	0.33	59.1	57.0
1-May	14		62.1	45.5	0	63.0	54.8
2-May	15		63.3	44.2	0	64.4	57.4
3-May	16		56.2	43.2	0	61.7	56.2
4-May	17		62.0	44.8	0	63.3	56.0
5-May	18		56.7	43.8	0	60.7	55.3
6-May	19		57.5	45.5	0	59.1	56.4
7-May	20		60.9	53.4	0.27	60.3	57.5
8-May	21		71.1	55.5	0.19	65.1	58.3
9-May	22		72.6	57.0	0.07	67.5	60.9
10-May	23		82.8	53.4	0	70.6	61.2
11-May	24		78.7	63.0	0.58	68.7	65.1
12-May	25		65.4	49.2	0.08	67.7	63.6
13-May	26		59.7	39.1	0	63.5	58.9
14-May	27		60.4	35.3	0.01	63.5	55.8
15-May	28		79.4	51.8	0.01	66.1	59.5
16-May	29		84.7	65.3	0	69.3	63.3
17-May	30	0	80.4	55.6	0	72.4	63.2
18-May	31	1	69.2	57.8	0.26	67.4	64.1
19-May	32	2	76.0	58.9	0.2	69.1	63.3
20-May	33	3	81.0	64.9	0	74.0	65.7
21-May	34	4	80.5	67.3	0.01	75.3	68.2
22-May	35	5	81.1	69.1	0	73.9	69.5
23-May	36	6	77.8	67.8	0.29	72.6	69.4
24-May	37	7	67.7	49.5	0.28	70.7	63.0
25-May	38	8	62.8	46.7	0	64.6	59.3
26-May	39	9	68.8	44.8	0	66.7	58.4
27-May	40	10	73.1	44.9	0	67.4	59.3
28-May	41	11	79.1	59.9	0.07	69.0	63.5

Date	Days After Planting		Max Temp (°F)	Min Temp (°F)	Rainfall (inches)	Max Soil Temp (°F)	Min Soil Temp (°F)
	Early Trial	Mid-Season Trial					
29-May	42	12	86.2	65.0	0.01	75.3	65.4
30-May	43	13	86.9	69.1	0	78.0	68.8
31-May	44	14	87.8	67.3	0	78.0	69.9
1-Jun	45	15	87.7	68.8	0	78.0	70.9
2-Jun	46	16	86.6	69.7	0.36	78.0	71.7
3-Jun	47	17	74.5	68.0	2.35	74.3	71.2
4-Jun	48	18	74.6	57.3	0	77.5	69.9
5-Jun	49	19	76.8	53.0	0	77.6	68.0
6-Jun	50	20	74.6	53.7	0	73.6	67.7
7-Jun	51	21	75.4	66.1	2.07	72.0	69.8
8-Jun	52	22	76.1	64.8	0.5	74.6	69.7
9-Jun	53	23	81.1	60.9	0	77.8	68.8
10-Jun	54	24	80.6	65.9	1.63	76.2	72.0
11-Jun	55	25	82.2	69.6	0.13	80.2	72.3
12-Jun	56	26	83.9	67.7	0	79.6	72.9
13-Jun	57	27	89.9	67.7	0.24	80.9	73.9
14-Jun	58	28	73.2	56.9	0.06	76.5	70.9
15-Jun	59	29	80.8	56.6	0	79.4	69.0
16-Jun	60	30	84.6	62.2	0.03	80.4	71.7
17-Jun	61	31	84.2	69.6	0.01	82.5	74.3
18-Jun	62	32	78.3	63.7	1.65	77.9	72.2
19-Jun	63	33	74.9	58.6	0	77.0	70.5
20-Jun	64	34	76.8	53.9	0	80.0	68.2
21-Jun	65	35	77.4	52.9	0	79.6	68.7
22-Jun	66	36	81.9	58.9	0	82.7	70.9
23-Jun	67	37	84.4	63.9	0.09	79.4	73.3
24-Jun	68	38	90.1	71.0	0.01	84.3	74.4
25-Jun	69	39	91.8	70.1	0	85.2	76.0
26-Jun	70	40	91.1	70.1	0.01	85.6	76.7
27-Jun	71	41	88.3	70.5	0.52	84.6	77.7
28-Jun	72	42	88.6	67.2	0.81	85.2	77.3
29-Jun	73	43	86.2	67.2	0.03	83.7	76.4
30-Jun	74	44	82.9	71.9	0.1	81.3	77.5
1-Jul	75	45	78.2	69.9	2.08	78.8	76.6
2-Jul	76	46	86.8	71.3	0.18	81.7	75.8
3-Jul	77	47	88.2	70.0	0	84.5	76.5
4-Jul	78	48	88.6	72.1	0	85.9	77.3
5-Jul	79	49	88.1	71.6	0	87.0	77.7
6-Jul	80	50	90.7	73.9	0	88.9	79.0
7-Jul	81	51	89.8	72.8	0	88.8	79.6
8-Jul	82	52	85.4	72.3	0	85.9	80.5
9-Jul	83	53	86.8	71.6	0.01	84.3	79.0
10-Jul	84	54	87.6	72.8	0	85.6	79.1
11-Jul	85	55	78.4	71.7	0.4	82.1	79.1
12-Jul	86	56	73.1	68.1	2.81	79.3	75.2
13-Jul	87	57	86.4	67.2	0.01	83.9	74.4
14-Jul	88	58	89.2	73.9	0.01	87.2	78.2
15-Jul	89	59	90.5	71.9	0	88.6	79.4
16-Jul	90	60	90.8	74.9	0.37	89.4	81.1
17-Jul	91	61	93.0	72.2	0	89.9	81.2

Date	Days After Planting		Max Temp (°F)	Min Temp (°F)	Rainfall (inches)	Max Soil Temp (°F)	Min Soil Temp (°F)
	Early Trial	Mid-Season Trial					
18-Jul	92	62	94.9	73.9	0	89.1	81.7
19-Jul		63	94.0	76.1	0	88.3	82.4
20-Jul		64	91.5	80.1	0	87.2	82.8
21-Jul		65	91.2	73.4	0.01	87.9	82.2
22-Jul		66	89.3	72.1	0.01	87.2	81.4
23-Jul		67	87.8	72.8	0.02	86.4	82.1
24-Jul		68	86.6	69.0	0	87.1	80.1
25-Jul		69	72.8	65.3	0	83.7	78.3
26-Jul		70	82.1	64.8	0	82.4	76.5
27-Jul		71	83.4	64.0	0	82.2	76.4
28-Jul		72	81.9	66.1	0.12	80.3	77.1
29-Jul		73	82.6	62.6	0	82.0	76.7
30-Jul		74	80.6	58.4	0	80.1	73.7
31-Jul		75	81.7	60.0	0	78.8	73.9