University of Delaware

Processing Sweet Corn Variety Trial Results

2015

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2015 University of Delaware Processing Sweet Corn Variety Trials

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Introduction

The UD Extension Vegetable Program conducted four processing sweet corn trials in 2015. The purpose of these trials was to evaluate new processing sweet corn varieties for yield and quality characteristics under Delaware growing conditions. Similar trials were conducted in Delaware in 1999, 2000, 2002, 2006, 2010 and 2011. Reports from past trials are archived at http://extension.udel.edu/ag/vegetable-fruit-resources/vegetable-small-fruits-program/variety-trial-results/.

Two yellow supersweet trials, one white supersweet trial and one yellow sugary trial were planted in 2015. 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

Trial	**Early Yellow Superweet Trial**	**Early Yellow Sugary Trial**	**Mid Yellow Supersweet Trial**	**Mid White SupersweetTrial**
Planting Date	April 17	April 24	May 11	May 14
Planting Procedure	Planted with Monosem	Hand planted with jab-planters	Hand planted with jab-planters	Planted with Monosem
Spacing	9” in-row, 30” between-row			
# Varieties	22	5	21	12
Location	UD Carvel REC Georgetown, DE	Laurel, DE 38°32’48” N 75°35’14” W	Milton, DE 38°44’11” N 75°16’48” W	UD Carvel REC Georgetown, DE
Design	Randomized Complete Block Design with 4 Replications			
Plot Size	3-row plots plots 50 ft long	4-row plots plots 25 ft long	4-row plots plots 25 ft long	3-row plots plots 50 ft long
Harvest Section	30 ft of center row	15 ft of center two rows		30 ft of center row
Irrigation	Overhead irrigation (center pivot or linear system)			
Weed Control	Pre-emergence herbicides used on all plots. Hand weeding was necessary in the Early Yellow su Trial. Weed control was excellent in all plots.			
Insecticide	All plots received multiple sprays to control corn earworm and European corn borer. Incidence was very low in all plots.			
Harvest Began	July 15	July 10	July 27	July 31
Harvest Ended	July 21	July 10	July 30	August 5

Yellow Varieties Entered in the 2015 Processing Sweet Corn Variety Trials

Name	Reported Days to Harvest	Entering Company	Reported Disease Resistance*
Yellow Supersweet			
1972 XR	72	Illinois Foundation Seeds	**HR:** Ps: RpG
XTH1679	77	Illinois Foundation Seeds	**HR:** Ps: RpGI MDMV **IR:** Et
1980 XR	80	Illinois Foundation Seeds	**HR:** Ps: RpGDJ
SV1339SK	83	Seminis	**IR:** Et / MDMV
SV1514SK	81	Seminis	**HR:** Ps: RpG **IR:** MDMV / SCMV / Pst
HMX 3344YS	74	Harris Moran	**HR:** MDMV
Owatonna	74	Harris Moran	**HR:** MDMV/Ps: Rp1d **IR:** Et
Mint	77	Harris Moran	**IR:** Et / MDMV / Ps
Klondike	83	Harris Moran	**HR:** Ps: Rp1gfj **IR:** Et
HMX 0372S	83	Harris Moran	**IR:** Et
HMX 0376S	80	Harris Moran	**HR:** Et / MDMV / Ps: Rp1gfj
Delphy (HMX 3989S)	81	Harris Moran	**HR:** MDMV / Ps: Rp1gfj **IR:** Et
CSHYP10-435GI5	75	Crookham Company	Ps: Rp1GI5
HARDI GI5	82	Crookham Company	Ps: Rp1GI5
3590MR	82	Abbott & Cobb, Inc.	Ps / Et / MDMV / Pst
ACR 3511R	79	Abbott & Cobb, Inc.	Ps: RpGI / Et
3003R	69	Abbott & Cobb, Inc.	Ps: Rp1GI
GSS 3951	82	Syngenta	Ps: Rp-di / MDMV / Et / Pst
GSS 3071	79	Syngenta	**HR:** Pst / Bm / Ps: Rp1-d, Rp1-I / MDMV **IR:** Et
Star (GSS7158)	72	Syngenta	**HR:** Bm / Ps: Rp1-d, Rp1-g **IR:** Pst / Et / MDMV
Overland	84	check (Syngenta)	**HR:** Et / Ps: Rp1-i / Pst **IR:** Bm / Ps
Protégé	77	check (Syngenta)	**HR:** Bm / Et / Ps: Rp1-i **IR:** Ps / Pst
Yellow Sugary (su)			
SC1263	73	Seminis	**HR:** Ps: Rp1D, RpG **IR:** MDMV / SCMV
HMX 3347	74	Harris Moran	**HR:** MDMV / Ps: Rp1d
CSUYP13-616	72	Crookham Company	-
CSUYP13-728	77	Crookham Company	Ps
GH4927	75	check (Syngenta)	**HR:** Ps: Rp 1-i **IR:** Bm

**Bm - Southern corn leaf blight caused by Bipolaris maydis (= Helminthosporium maydis)*
Et - Northern corn leaf blight caused by Exserohilum turcicum (= Helminthosporium turcicum)
MDMV - Maize dwarf mosaic virus
Ps - Common rust caused by Puccinia sorghi followed by reported resistance genes
Pst - Stewart's wilt caused by Pantoea stewartii (= Erwinia stewartii)

White Varieties Entered in the 2015 Processing Sweet Corn Variety Trials

Name	Reported Days to Harvest	Entering Company	Reported Disease Resistance*
White Supersweet			
378A	78	Illinois Foundation Seeds	**IR:** Et
XTH3174	76	Illinois Foundation Seeds	**IR:** Et
Devotion	82	Seminis	**IR:** Pst
SV1580SC	79	Seminis	**HR:** Ps: Rp1D, RpG **IR:** Et
Ice Queen	77	Harris Moran	**IR:** Et / MDMV / Ps
Placer (HMX 2348WS)	76	Harris Moran	**IR:** MDMV
CSAWP 11-456	82	Crookham Company	MDMV
Glacial	76	Abbott & Cobb	-
7401 Imp	74	Abbott & Cobb	MDMV
WSS 3681	83	Syngenta	**HR:** Ps: Rp1-d **IR:** Bm
XP 08705770		check (seed supplied by Hanover)	
CSHWP 9-371		check (seed supplied by Hanover)	

**Bm - Southern corn leaf blight caused by Bipolaris maydis (= Helminthosporium maydis)*
Et - Northern corn leaf blight caused by Exserohilum turcicum (= Helminthosporium turcicum)
MDMV - Maize dwarf mosaic virus
Ps - Common rust caused by Puccinia sorghi (followed by reported resistance genes)
Pst - Stewart's wilt caused by Pantoea stewartii (= Erwinia stewartii)

Data Collection Procedures

For all trials, stand counts were done early in the season, soon after emergence. All plants in each row were counted. This data was collected on May 8 (21 DAP) for the Early Yellow Supersweet Trial, on May 14 (20 DAP) for the Early Yellow Sugary Trial, on June 5 (25 DAP) for the Mid-Season Yellow Supersweet Trial, and on June 5 (22 DAP) for the Mid-Season White Supersweet Trial.

For all four trials, a thirty-foot section of the plot was flagged and designated for harvest when the plants were about three feet tall. The plants in this section were counted and are reported as final stands for all trials except the Mid-Season White Supersweet Trial.

A few days before harvest, the height of the plant and the height of the first ear was measured and recorded for eight plants from each replication.

In advance of harvest, five-ear samples were taken from the plot border rows and tested for percent moisture as described below. The target range for harvest for the sugary varieties was 69-72% moisture. The target range for the superweet varieties was 72-75% moisture.

Ears were hand harvested from each thirty-foot harvest section. Ears were counted and weighed in-husk and husked. Five ears were removed from the sample to measure ear length, ear diameter, row number and kernel depth. The remaining ears were used to determine cut weight.

Corn was cut using a commercial cutter. The procedure for determining percent moisture was as follows. A ~200 gram sample of cut corn was blended to slurry with a conventional kitchen blender. A ~20 gram sample of the corn slurry was weighed into an aluminum baking cup. The sample was then placed in a 140/150°F drying oven for 12-24 hours. Dried samples were weighed again and percent moisture was calculated.

Discussion of Trial Results

Trial results are presented in Tables 1 through 20. Means followed by the same letter are not significantly different by Fisher's Protected LSD. The critical value for Tukey's HSD is also noted.

Yellow Supersweet Trials

The early trial of yellow supersweet varieties was planted into Pepperbox loamy sand, 0 to 2 percent slopes on April 17. This trial received adequate irrigation. There was some ponding of water in a low part of the field that was contained in the 4th block/replication. Overall, yields in the trial were good.

The mid-season trial of yellow supersweet varieties was planted into Pepperbox-Rosedale complex, (loamy sand) 2 to 5 percent slopes on May 11. This trial was well irrigated and yields were excellent.

There were significant differences between the varieties in stand in both the Early and Mid-Season trials (Tables 1 and 2). Stand differences were greater in the Early Trial, which experienced less ideal conditions for germination and emergence. HARDI GI5, CSHYP10-435GI5, HMX 0376S, 1972 XR, GSS 3951 and 1980XR had early stands of 90% or greater in both trials. In the early trial at 21 days after planting SV1514SK and 3590MR had stands of 64% and 61% respectively. Their stands were significantly lower than that of all of the other varieties.

The earliest varieties to mature were HMX 3344YS, CSHYP10-435GI5, 3003R, and 1972 XR (Tables 3 and 4).

There were significant differences in yield between the varieties in both trials (Tables 5 and 6). In the Early Trial, ten varieties were not significantly different than the highest yielding variety (SV1339SK) in terms of tonnage (unhusked ears in tons/acre). In terms of cut corn, SV1339SK produced a higher yield than all other varieties except Mint. In the Mid-Season Trial, 1980 XR produced the highest yield in terms of tonnage (12.43 tons/A). The yield for 1980 XR was significantly higher than all other varieties except SV1339SK. Five varieties had significantly higher yields in terms of tonnage than the standard variety, Overland: 1980 XR, SV1339SK, SV1514SK, XTH1679 and GSS3071. In both trials SV1339SK had exceptional percent recovery of 44%, which was significantly higher than that of all other varieties.

Plant height and ear height was less in the Early Trial than the Mid-Season Trial (Tables 9 and 10). Some varieties produced extremely short plants in the early trial, with ears very close to the ground: Star, 3003R, 1972 XR and HMX 3344YS. This could make harvest more difficult.

Early Yellow Sugary Trial
The early trial of the sugary varieties was planted into Henlopen-Rosedale complex, (loamy sand) 0 to 2 percent slopes on April 24. This trial was well watered and minimally stressed. There was some raccoon damage to this plot until an electric fence was installed. Two reps of CSUYP13-616 were damaged to the point of being unharvestable.

Emergence in the plot was excellent and there were no significant differences between the varieties in either early stand or harvest section stand (Table 11). The earliest varieties in this trial were GH4927 and CSUYP13-616 (Table 12).

There were no significant differences in yield for this trial in terms of tonnage. In terms of cut corn, SC1263 produced significantly higher yields than GH4927 and CSUYP13-728.

Mid-Season White Supersweet Trial
The mid-season trial of white supersweet varieties was planted into Rosedale loamy sand, 0 to 2 percent slopes on May 14. This trial was well watered and minimally stressed.

Emergence in this plot was excellent for most varieties (Table 16). This trial was planted with a Monosem with packeted seed. Two varieties, SV1580SC and CSAWP 11-456, had many small and irregularly shaped seeds that resulted in double and triple planting and irregular spacing. This seemed to negatively impact the yield of CSAWP 11-456 especially, which did not perform well at a higher than normal plant density.

Ice Queen, XTH3174, Placer and CSHWP 9-371 were the earliest varieties to mature. Seven varieties were not significantly different than Placer, the top yielding variety in terms of tonnage, Devotion, SV1580SC, 378A, CSHWP 9-371, Ice Queen, Glacial, and 7401 Imp. In terms of cut corn four varieties were not significantly different than Devotion, the top yielding variety: 378A, Placer, XTH3174 and Ice Queen.

2015 University of Delaware Processing Sweet Corn Trials
Results for Yellow Supersweet Varieties
Early Trial planted April 17, 2015, Mid-Season Trial planted May 11, 2015

Table 1. 2015 Early Yellow Supersweet Trial: Early and Harvest Section Stands

Variety	% Stand 21 DAP		% Stand in Harvest Section	
HARDI GI5	97.2	a	111.3	ab
CSHYP10-435GI5	97.2	a	109.4	abc
Delphy	94.9	ab	102.5	abcde
HMX 0376S	94.1	abc	115.0	a
1972 XR	92.0	bcd	96.9	bcdef
Mint	91.5	bcd	101.9	abcde
Overland	91.4	bcde	101.3	abcde
GSS 3951	90.5	bcde	100.6	abcde
1980 XR	90.0	bcdef	107.5	abc
Owatonna	89.5	cdef	100.0	bcde
HMX 3344YS	89.0	def	101.3	abcde
Klondike	88.9	def	96.9	bcdef
GSS 3071	88.3	def	96.3	cdef
XTH1679	87.9	defg	95.0	cdef
HMX 0372S	86.5	efg	101.9	abcde
Protégé	85.5	fg	96.3	cdef
3003R	85.2	fg	105.6	abcd
SV1339SK	83.1	g	100.0	bcde
ACR 3511R	76.0	h	91.9	defg
Star	75.8	h	90.0	efg
SV1514SK	63.9	i	82.5	fg
3590MR	61.1	i	79.4	g
p-value	***<0.0001***		***0.0010***	
LSD	**4.9575**		**14.759**	
Tukey's HSD	**9.3631**		**27.874**	

Table 2. 2015 Mid-Season Yellow Supersweet Trial: Early and Harvest Section Stands

Variety	% Stand 25 DAP		% Stand in Harvest Section	
CSHYP10-435GI5	94.1	a	100.6	a
SV1339SK	93.6	ab	96.3	abc
HARDI GI5	92.5	abc	92.5	abcdef
GSS 3951	91.7	abc	92.5	abcdef
1972 XR	91.5	abc	93.8	abcde
GSS 3071	91.4	abc	99.4	ab
HMX 0376S	90.4	abcd	88.1	cdefg
1980 XR	90.3	abcd	92.5	abcdef
Overland	89.5	abcde	91.3	bcdefg
XTH1679	89.3	abcde	89.4	cdefg
Owatonna	87.3	cdef	85.0	efgh
Delphy	85.3	defg	85.6	defgh
HMX 0372S	85.3	defg	85.6	defgh
SV1514SK	84.7	defg	85.0	efgh
Klondike	84.7	defg	85.6	defgh
Mint	84.2	efg	87.5	cdefgh
HMX 3344YS	82.7	fgh	83.8	fgh
3590MR	80.5	gh	78.8	hi
ACR 3511R	77.9	hi	73.8	i
Star	77.0	hi	83.1	gh
Protégé	74.5	i	73.1	i
p-value	***<0.0001***		***<0.0001***	
LSD	**5.9916**		**9.1856**	
Tukey's HSD	**11.253**		**17.251**	

Table 3. 2015 Early Yellow Supersweet Trial: Moisture Samples Up to and Including Harvest*

		8-Jul	9-Jul	10-Jul	11-Jul	12-Jul	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul
Variety	**DTH**	**82**	**83**	**84**	**85**	**86**	**87**	**88**	**89**	**90**	**91**	**92**	**93**	**94**	**95**
HMX 3344YS	89	79.40							**68.16**						
CSHYP10-435GI5	89	78.53							**71.14**						
3003R	89	78.15							**71.67**						
Owatonna	89	79.87							**74.70**						
Star	89	80.21							**74.99**						
HMX 0376S	91								**73.74**		**72.79**				
1972 XR	91								72.46		**73.12**				
XTH1679	91								74.61		**73.12**				
Klondike	91								74.14		**73.16**				
ACR 3511R	91								72.91		**74.88**				
Protégé	91								77.02		**76.09**				
GSS 3951	94								76.75					**73.16**	
3590MR	94								77.12					**74.38**	
Mint	94								76.47					**74.91**	
SV1339SK	94										77.01			**75.24**	
SV1514SK	94								78.40					**75.51**	
HARDI GI5	95										74.74				**71.83**
1980 XR	95										75.65				**72.78**
Overland	95										76.56				**73.53**
HMX 0372S	95										73.63				**74.25**
GSS 3071	95								77.00						**76.08**
Delphy	95										77.20				**76.31**

* Numbers in bold are final harvest averages of four replications; other numbers based on a sample of five ears from a single rep.

Table 4. 2015 Mid-Season Yellow Supersweet Trial: Moisture Samples Up to and Including Harvest*

		24-Jul	25-Jul	26-Jul	27-Jul	28-Jul	29-Jul	30-Jul
Variety	**DTH**	**74**	**75**	**76**	**77**	**78**	**79**	**80**
HMX 3344YS	77	73.31			**71.57**			
CSHYP10-435GI5	77	72.64			**71.83**			
1972 XR	77	74.15			**72.47**			
XTH1679	77	73.74			**73.23**			
Klondike	77	74.61			**73.34**			
HMX 0376S	77	74.72			**73.86**			
Mint	77	74.76			**74.97**			
Protégé	77	75.15			**76.06**			
HMX 0372S	79	76.18					**65.50**	
1980 XR	79						**67.95**	
GSS 3071	79	75.9					**68.22**	
Star	79	75.88					**68.53**	
GSS 3951	79	76.99					**70.96**	
ACR 3511R	79						**71.90**	
SV1514SK	79	75.55					**72.21**	
Owatonna	79	75.55					**72.55**	
SV1339SK	80							**70.48**
Delphy	80							**71.56**
HARDI GI5	80							**72.03**
Overland	80							**72.86**
3590MR	80							**72.95**

* Numbers in bold are final harvest averages of four replications; other numbers based on a sample of five ears from a single rep.

Table 5. 2015 Early Yellow Supersweet Trial: Yield and Harvest Data

Variety	Days to Harvest	Weight Unhusked Ears (tons/A)		Weight Husked Ears (tons/A)		Weight Cut Corn (lbs/A)		Percent Recovery		Percent Moisture		# Ears per Acre		# Ears per Plant	
SV1339SK	94	10.32	a	7.95	a	9,084	a	44.0	a	75.24	abcd	23,087	bcdef	0.987	cdefg
SV1514SK	94	10.21	a	7.28	abc	7,072	bcd	34.5	bcde	75.51	abc	23,378	bcde	1.217	a
Mint	94	9.56	ab	7.43	ab	7,365	abc	37.1	bc	74.91	bcd	23,813	abcd	1.010	cdef
1980 XR	95	9.35	ab	7.12	abcd	6,238	bcde	33.4	cdef	72.78	hi	26,281	ab	1.052	bcde
Delphy	95	9.32	ab	7.10	abcd	6,329	bcde	33.9	bcdef	76.31	a	25,555	abc	1.073	abcde
HMX 0372S	95	9.30	ab	7.10	abcd	5,653	cdef	30.3	efgh	74.25	defg	25,991	abc	1.103	abcd
GSS 3071	95	9.30	ab	6.58	bcde	5,827	bcdef	31.2	defg	76.08	ab	23,958	abcd	1.072	abcde
HMX 0376S	91	9.13	ab	6.74	bcde	5,287	efg	28.9	fghi	72.79	hi	27,588	a	1.034	cde
Overland	95	8.98	ab	7.04	abcde	6,289	bcde	34.8	bcde	73.53	efgh	24,394	abcd	1.040	bcde
GSS 3951	94	8.96	ab	6.83	abcde	5,620	def	31.3	defg	73.16	fgh	24,249	abcd	1.044	bcde
XTH1679	91	8.95	ab	6.55	bcde	5,628	def	31.4	defg	73.12	gh	22,216	cdef	1.007	cdef
HARDI GI5	95	8.67	bc	6.48	bcdef	5,784	cdef	33.3	cdef	71.83	ij	23,813	abcd	0.921	efg
Klondike	91	8.63	bc	6.13	cdefgh	4,435	fg	25.5	hi	73.16	fgh	24,103	abcd	1.076	abcd
Protégé	91	8.52	bcd	6.37	bcdefg	5,097	efg	29.8	efghi	76.09	ab	23,087	bcdef	1.035	cde
3590MR	94	8.46	bcd	6.54	bcde	5,659	cdef	33.3	cdef	74.38	cdef	18,150	g	0.984	cdefg
HMX 3344YS	89	8.31	bcd	5.90	efgh	4,438	fg	26.5	ghi	68.16	k	23,087	bcdef	0.983	cdefg
ACR 3511R	91	8.26	bcd	6.00	defgh	5,011	efg	29.5	efghi	74.88	bcd	24,975	abcd	1.191	ab
3003R	89	7.38	cd	5.22	gh	3,668	g	24.8	i	71.67	ij	23,523	bcd	0.959	defg
Owatonna	89	7.21	cd	5.29	fgh	4,836	efg	33.3	cdef	74.70	cde	19,457	efg	0.841	g
1972 XR	91	7.11	d	5.14	h	5,086	efg	35.8	bcd	73.12	gh	19,167	fg	0.859	fg
Star	89	7.08	d	5.00	h	5,078	efg	35.9	bcd	74.99	bcd	21,345	defg	1.030	cde
CSHYP10-435GI5	89	7.07	d	5.26	gh	4,287	fg	30.3	efgh	71.14	j	23,813	abcd	0.956	defg
p-value		***<0.0001***		***<0.0001***		***<0.0001***		***<0.0001***		***<0.0001***		***0.0017***		***0.0009***	
LSD		**1.4767**		**1.1988**		**1722.7**		**5.4237**		**1.2503**		**3936.4**		**0.1532**	
Tukey's HSD		**2.7891**		**2.2642**		**3253.6**		**10.244**		**2.3613**		**7434.5**		**0.2893**	

Table 6. 2015 Mid-Season Yellow Supersweet Trial: Yield and Harvest Data

Variety	Days to Harvest	Weight Unhusked Ears (tons/A)	Weight Husked Ears (tons/A)	Weight Cut Corn (lbs/A)	Percent Recovery	Percent Moisture	# Ears per Acre	# Ears per Plant
1980 XR	79	12.43 a	9.18 a	9482 b	38.1 c	67.95 hi	22,361 bcde	1.041 bcde
SV1339SK	80	12.03 ab	9.33 a	10624 a	44.1 a	70.48 fgh	23,352 abc	0.986 de
SV1514SK	79	11.22 bc	7.79 bcd	8334 c	37.1 cd	72.21 def	19,893 fg	1.009 cde
XTH1679	77	10.91 cd	7.37 cdef	6991 efg	32.1 h	73.23 cde	22,216 bcde	1.070 bcde
GSS 3071	79	10.80 cd	8.02 bc	7740 cde	35.8 de	68.22 h	25,120 a	1.093 bcd
GSS 3951	79	10.68 cde	7.68 bcde	7134 ef	33.4 fgh	70.96 efg	20,763 def	0.966 e
HARDI GI5	80	10.68 cde	8.08 b	7717 cde	36.1 de	72.03 def	21,054 def	0.980 e
HMX 0372S	79	10.38 cdefg	7.32 cdef	6150 hij	29.6 i	65.50 i	22,796 bcd	1.147 b
CSHYP10-435GI5	77	10.15 defg	7.34 cdef	7513 def	37.0 cd	71.83 def	23,958 ab	1.025 cde
Owatonna	79	10.07 defg	7.08 efgh	7236 ef	35.9 de	72.55 cdef	20,764 def	1.050 bcde
Mint	77	9.84 efgh	7.20 defg	6843 fgh	34.7 ef	74.97 abc	20,619 defg	1.015 cde
1972 XR	77	9.84 efgh	6.39 h	6734 fgh	34.2 fg	72.47 cdef	22,070 bcdef	1.017 cde
3590MR	80	9.81 efgh	7.37 cdef	7051 efg	35.9 de	72.95 cdef	18,440 g	1.010 cde
Overland	80	9.81 efgh	7.97 bc	8090 cd	41.2 b	72.86 cdef	20,909 def	0.987 de
ACR 3511R	79	9.75 fgh	7.08 efgh	7358 def	37.7 c	71.90 def	21,490 cdef	1.268 a
HMX 3344YS	77	9.64 ghi	6.54 gh	5702 ijk	29.6 i	71.57 def	20,619 defg	1.060 bcde
HMX 0376S	77	9.48 ghi	6.72 fgh	6327 ghi	33.4 fgh	73.86 bcd	21,054 def	1.031 cde
Klondike	77	9.00 hi	6.70 fgh	5840 ijk	32.4 h	73.34 cde	20,183 efg	1.019 cde
Protégé	77	8.73 ij	6.39 h	5293 k	30.3 i	76.06 ab	21,635 cdef	1.276 a
Delphy	80	8.71 ij	6.45 h	5818 ijk	33.3 gh	71.56 def	20,473 efg	1.031 cde
Star	79	7.99 j	5.67 i	5475 jk	34.2 fg	68.53 gh	21,344 cdef	1.110 bc
p-value		***<0.0001***	***<0.0001***	***<0.0001***	***<0.0001***	***<0.0001***	***<0.0001***	***<0.0001***
LSD		**0.931**	**0.6985**	**796.74**	**1.3983**	**2.5714**	**2239.4**	**0.1114**
Tukey's HSD		**1.7484**	**1.3118**	**1496.3**	**2.6261**	**4.8292**	**4205.7**	**0.2092**

Table 7. 2015 Early Yellow Supersweet Trial: Ear Characteristics

Variety	Ear Weight (g)		Ear Length (cm)		Ear Diameter (cm)		Kernel Depth (cm)		Mean Number of Rows	
3590MR	327	a	22.9	a	5.1	b	1.27	ab	19.0	abc
SV1339SK	315	ab	19.6	bcdef	5.4	a	1.22	abcd	19.4	a
SV1514SK	283	bcd	18.9	efg	4.9	cd	1.19	cdefg	19.1	ab
Mint	281	cde	19.7	bcde	5.0	bc	1.29	a	18.3	bcde
XTH1679	269	cdef	18.5	fgh	4.5	gh	1.17	defg	17.3	fghi
Overland	263	cdefg	20.1	bc	4.9	cd	1.20	bcdef	18.2	bcdef
GSS 3951	257	cdefg	20.0	bcd	4.9	cde	1.15	efg	18.5	abcd
Delphy	253	defgh	18.9	efg	4.8	def	1.21	bcde	17.6	defgh
Protégé	250	defgh	18.7	efgh	4.4	hi	1.08	hi	17.0	hi
GSS 3071	249	efghi	19.7	bcde	4.8	def	1.20	cdef	15.7	jk
HMX 0372S	248	efghi	20.3	b	4.8	de	1.14	fgh	18.1	cdef
HARDI GI5	248	efghi	19.0	defg	4.9	cde	1.13	ghi	18.8	abc
1980 XR	247	efghi	19.2	bcdefg	4.7	ef	1.08	hi	15.6	k
Owatonna	245	fghij	17.4	ij	4.3	j	1.15	efg	15.4	kl
1972 XR	244	fghij	16.5	jk	5.0	cd	1.19	defg	17.2	ghi
HMX 3344YS	232	ghijk	18.4	ghi	4.7	efg	1.15	efg	15.9	jk
Klondike	232	ghijk	18.8	efg	4.4	hij	1.13	ghi	16.6	ij
HMX 0376S	223	hijk	17.8	hi	4.3	ij	1.26	abc	16.6	ij
ACR 3511R	217	jki	19.1	cdefg	4.3	ij	1.07	i	16.0	jk
Star	214	jk	15.4	kl	4.4	hij	1.16	defg	14.6	lm
3003R	205	k	18.3	ghi	4.6	fg	1.14	fgh	13.8	m
CSHYP10-435GI5	201	k	14.8	l	5.2	b	1.18	defg	15.5	kl
p-value	***<0.0001***		***<0.0001***		***<0.0001***		***<0.0001***		***<0.0001***	
LSD	**33.365**		**1.0589**		**0.1842**		**0.0651**		**0.9674**	
Tukey's HSD	**63.015**		**1.9605**		**0.3411**		**0.1205**		**1.7912**	

Table 8. 2015 Mid-Season Yellow Supersweet Trial: Ear Characteristics

Variety	Ear Weight (g)		Ear Length (cm)		Ear Diameter (cm)		Kernel Depth (cm)		Mean Number of Rows	
1980 XR	372	a	23.4	a	5.2	b	1.18	fgh	17.7	bcd
3590MR	363	ab	23.3	a	5.1	bcde	1.25	cdef	18.2	ab
SV1339SK	362	ab	21.5	def	5.4	a	1.25	cde	19.1	a
SV1514SK	355	bc	21.1	efg	5.2	b	1.36	ab	19	a
HARDI GI5	348	bcd	22.9	ab	4.9	fgh	1.26	cde	16.7	efg
Overland	346	cd	21.9	cd	5.1	bcd	1.25	cde	17.9	bc
GSS 3951	335	de	21.3	def	5.0	efg	1.35	ab	17.9	bc
Mint	317	fg	20.9	fgh	5.0	cdef	1.26	cd	18.2	ab
Owatonna	310	gh	21.6	def	5.0	defg	1.30	bc	15.5	hi
XTH1679	301	hi	21.5	def	5.0	efgh	1.09	i	16.9	def
Klondike	301	hi	21.7	de	4.9	fgh	1.14	hi	16.3	fgh
ACR 3511R	299	hi	21.5	def	4.9	efgh	1.37	ab	18.2	ab
HMX 0372S	291	ij	22.4	bc	5.0	efg	1.20	defgh	17.3	bcde
GSS 3071	290	ij	20.2	ij	4.9	fgh	1.22	defg	16.9	def
HMX 0376S	290	ij	19.9	ij	4.8	i	1.24	cdefg	16.4	efgh
HMX 3344YS	288	ij	21.1	ef	4.9	ghi	1.10	i	15.8	gh
Delphy	286	ij	19.7	jk	4.8	i	1.31	bc	17.7	bce
CSHYP10-435GI5	279	jk	20.1	ij	5.2	bc	1.19	efgh	14	j
Protégé	270	k	20.4	gi	4.8	hi	1.20	defgh	15.8	gh
1972 XR	263	k	20.4	ghi	5.2	b	1.17	gh	17	cdef
Star	241	l	19.1	k	5.0	cdef	1.39	a	14.8	ij
p-value	***<0.0001***		***<0.0001***		***<0.0001***		***<0.0001***		***<0.0001***	
LSD	**15.681**		**0.6629**		**0.1337**		**0.0735**		**0.9481**	
Tukey's HSD	**29.45**		**1.2198**		**0.246**		**0.1353**		**1.7446**	

Table 9. 2015 Early Yellow Supersweet Trial: Plant Characteristics

Variety	Plant Height (cm)		Height of 1st Ear (cm)	
Klondike	199	a	67	a
SV1339SK	194	ab	56	b
GSS 3951	191	bc	50	cd
GSS 3071	189	c	51	c
Owatonna	188	cd	41	fgh
Overland	186	cde	60	b
HARDI GI5	183	def	52	c
HMX 0372S	183	ef	46	de
HMX 0376S	180	fg	49	cd
SV1514SK	173	hi	51	c
1980 XR	172	hi	46	de
Delphy	170	ij	43	efg
3590MR	168	ijk	44	ef
Protégé	168	ijkl	42	fg
ACR 3511R	166	jklm	40	gh
Star	163	klm	31	kl
XTH1679	163	lmn	35	ij
Mint	162	mn	40	gh
CSHYP10-435GI5	158	no	37	hi
3003R	156	o	27	l
1972 XR	154	o	31	jk
HMX 3344YS	153	o	31	k
p-value	***<0.0001***		***<0.0001***	
LSD	**5.1844**		**4.0103**	
Tukey's HSD	**9.5856**		**7.4147**	

Table 10. 2015 Mid-Season Yellow Supersweet Trial: Plant Characteristics

Variety	Plant Height (cm)		Height of 1st Ear (cm)	
HARDI GI5	251	a	85	a
GSS 3951	244	b	66	cde
HMX 0372S	244	b	69	bc
SV1339SK	240	bc	72	b
Owatonna	238	c	59	fghi
GSS 3071	231	d	65	cdef
Klondike	230	d	73	b
HMX 3344YS	224	e	56	hij
HMX 0376S	224	e	62	cdfgh
ACR 3511R	221	ef	63	cdefg
1980 XR	220	fg	64	cdefg
SV1514SK	217	gh	64	cdef
3590MR	216	gh	64	cdefg
Delphy	215	ghi	62	defgh
XTH1679	214	hi	55	ij
Overland	213	hij	67	bcd
CSHYP10-435GI5	213	hij	59	ghi
Mint	212	ijk	57	hi
Star	210	jk	56	hi
Protégé	208	k	60	efghi
1972 XR	203	l	50	j
p-value	***<0.0001***		***<0.0001***	
LSD	**4.528**		**6.3277**	
Tukey's HSD	**8.3198**		**11.627**	

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Table 11. 2015 Early Yellow Sugary Trial: Early and Harvest Section Stands

Variety	% Stand 20 DAP		% Stand in Harvest Section at Harvest	
CSUYP13-616	97.8	a	100.6	a
HMX 3347	97.1	a	98.1	a
CSUYP13-728	89.7	b	89.4	a
GH4927	88.8	b	90.0	a
SC1263	88.2	b	90.6	a
p-value	***0.0003***		***0.0517***	
LSD	**4.0849**		**NA**	
Tukey's HSD	**5.9758**		**NA**	

Table 12. 2015 Early Yellow Sugary Trial: Percent Moisture Up To and Including Harvest*

		7-Jul	8-Jul	9-Jul	10-Jul
Variety	**DTH**				
GH4927	77	66.70			**62.32**
CSUYP13-616	77	63.84			**64.20**
CSUYP13-728	77	68.09			**65.19**
HMX 3347	77	67.03			**67.37**
SC1263	77	70.28			**67.98**

* Numbers in bold are final harvest averages of four replications; other numbers based on a sample of five ears from a single rep.

Table 13. 2015 Early Yellow Sugary Trial: Yield and Harvest Data

Variety	Days to Harvest	Weight Unhusked Ears (tons/A)	Weight Husked Ears (tons/A)	Weight Cut Corn (lbs/A)	Percent Recovery	Percent Moisture	# Ears per Acre	# Ears per Plant
CSUYP13-616	77	8.59 *	6.64 *	5,914 *	34.5 *	64.20 b	21,780 *	0.951 *
GH4927	77	8.12 a	5.94 a	4,296 b	26.5 b	62.32 c	23,377 a	1.123 a
HMX 3347	77	7.97 a	5.96 a	5,908 ab	37.0 a	67.37 a	18,876 a	0.827 bc
SC1263	77	7.91 a	5.77 a	6,519 a	41.0 a	67.98 a	19,021 a	0.905 ab
CSUYP13-728	77	5.83 a	4.16 a	4,407 b	38.5 a	65.19 b	12,923 b	0.627 c
p-value		***0.0776***	***0.0575***	***0.0352***	***0.0015***	***0.0001***	***0.0138***	***0.0136***
LSD		**NA**	**NA**	**1673.8**	**5.8163**	**1.8443**	**5483.7**	**0.2613**
Tukey's HSD		**NA**	**NA**	**2309.8**	**8.0265**	**2.698**	**7567.5**	**0.3606**

* Raccoon damage to this variety severely affected our ability to assess yield for two of four replications. Numbers are an average of the two minimally damaged replications.

Table 14. 2015 Early Yellow Sugary Trial: Ear Characteristics

Variety	Ear Weight (g)	Ear Length (cm)	Ear Diameter (cm)	Kernel Depth (cm)	Mean # of Rows
CSUYP13-728	299 a	20.2 a	5.2 a	1.16 a	17.5 b
HMX 3347	288 a	17.3 c	4.9 b	1.18 a	17.0 b
CSUYP13-616	276 *	18.9 b	4.8 b	1.16 a	15.0 c
SC1263	275 a	16.9 c	4.9 b	1.15 a	18.7 a
GH4927	231 b	19.3 ab	4.6 c	1.14 a	17.0 b
p-value	***0.0017***	***<0.0001***	***<0.0001***	***0.8714***	***<0.0001***
LSD	**27.141**	**1.0189**	**0.1575**	**NA**	**0.9611**
Tukey's HSD	**37.454**	**1.4275**	**0.2207**	**NA**	**1.3466**

Table 15. 2015 Early Yellow Sugary Trial: Plant Characteristics

Variety	Plant Height (cm)	Height of 1st Ear (cm)
CSUYP13-728	213 a	58 a
CSUYP13-616	187 b	46 c
GH4927	185 b	52 b
HMX 3347	184 bc	42 d
SC1263	181 c	50 b
p-value	***<0.0001***	***<0.0001***
LSD	**3.8491**	**3.386**
Tukey's HSD	**5.3786**	**4.7316**

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Table 16. 2015 Mid-Season White Supersweet Trial: Early Stand

Variety	% Stand 22 DAP	
378A	96.6	a
Ice Queen	96.3	a
XP 08705770	96.0	ab
Devotion	90.8	bc
Glacial	88.4	cd
Placer	87.9	cd
CSHWP 9-371	86.3	cde
XTH3174	84.3	def
7401 Imp	82.3	efg
WSS 3681	80.2	fg
CSAWP 11-456	79.1	fg
SV1580SC	78.9	g
p-value	***<0.0001***	
LSD	**5.3983**	
Tukey's HSD	**9.3162**	

Table 17. 2015 Mid-Season White Supersweet Trial: Percent Moisture Up To and Including Harvest*

		31-Jul	1-Aug	2-Aug	3-Aug	4-Aug	5-Aug
Variety	**DTH**						
Ice Queen	78	**71.40**					
XTH3174	78	**72.74**					
Placer	78	**74.19**					
CSHWP 9-371	78	**75.76**					
Glacial	82					**71.01**	
7401 Imp	82					**73.13**	
378A	82					**73.29**	
SV1580SC	82					**75.66**	
WSS 3681	83						**73.32**
XP 08705770	83						**73.55**
CSAWP 11-456	83						**73.76**
Devotion	83						**75.23**

* Numbers in bold are final harvest averages of four replications; other numbers based on a sample of five ears from a single rep.

Table 18. 2015 Mid-Season White Supersweet Trial: Yield and Harvest Data

Variety	Days to Harvest	Weight Unhusked Ears (tons/A)	Weight Husked Ears (tons/A)	Weight Cut Corn (lbs/A)	Percent Recovery	Percent Moisture	# Ears per Acre
Placer	78	9.70 a	6.79 ab	5,854 ab	30.2 cd	74.19 b	23,813 bcd
Devotion	83	9.67 a	7.37 a	6,239 a	32.2 abc	75.23 a	29,766 a
SV1580SC	82	9.27 a	7.25 a	4,224 e	22.8 f	75.66 a	29,621 a
378A	82	9.19 ab	7.37 a	6,113 a	33.3 ab	73.29 cde	25,555 bc
CSHWP 9-371	78	9.04 ab	6.77 ab	4,918 cde	27.3 de	75.76 a	25,555 bc
Ice Queen	78	8.96 ab	6.58 ab	5,526 abc	30.9 bc	71.40 f	23,958 bcd
Glacial	82	8.74 ab	6.56 ab	4,633 de	26.3 e	71.01 f	26,862 ab
7401 Imp	82	8.50 ab	6.64 ab	5,191 bcd	30.4 c	73.13 de	24,394 bcd
XTH3174	78	7.93 bc	6.18 b	5,546 abc	34.8 a	72.74 e	21,199 de
CSAWP 11-456	83	7.08 cd	5.11 c	3,236 g	22.7 f	73.76 bc	23,813 bcd
WSS 3681	83	6.37 d	5.06 c	3,564 fg	27.5 de	73.32 cde	19,457 e
XP 08705770	83	6.33 d	4.98 c	3,738 fg	29.4 cd	73.55 cd	22,216 cde
p-value		***<0.0001***	***<0.0001***	***<0.0001***	***<0.0001***	***<0.0001***	***<0.0001***
LSD		**1.2742**	**0.9724**	**879.24**	**2.872**	**0.5812**	**3615.5**
Tukey's HSD		**2.199**	**1.6781**	**1517.4**	**4.9563**	**1.0029**	**6239.4**

Table 19. 2015 Mid-Season White Supersweet Trial: Ear Characteristics

Variety	Ear Weight (g)	Ear Length (cm)	Ear Diameter (cm)	Kernel Depth (cm)	Mean # of Rows
XTH3174	264 a	19.5 a	4.7 c	1.13 def	16.0 def
378A	262 a	19.8 a	4.9 ab	1.15 bcde	17.8 ab
Placer	258 a	20.2 a	4.6 cd	1.17 bcde	16.0 def
Ice Queen	250 ab	19.7 a	4.6 cde	1.15 bcde	15.9 ef
7401 Imp	247 abc	19.7 a	5.0 a	1.21 ab	17.5 ab
CSHWP 9-371	241 abcd	20.2 a	4.5 def	1.25 a	15.1 f
WSS 3681	234 bcd	20.0 a	4.4 ef	1.20 abc	17.2 b
Devotion	226 cde	18.6 b	4.6 cde	1.14 cde	17.0 bc
SV1580SC	222 de	18.4 b	4.6 cd	1.18 bcd	16.2 cde
Glacial	221 de	20.1 a	4.7 bc	1.06 g	16.9 bcd
XP 08705770	204 ef	18.2 b	4.7 c	1.10 efg	18.3 a
CSAWP 11-456	193 f	19.5 a	4.4 f	1.06 fg	15.7 ef
p-value	***<0.0001***	***<0.0001***	***<0.0001***	***<0.0001***	***<0.0001***
LSD	**23.28**	**0.8616**	**0.1661**	**0.0668**	**0.9792**
Tukey's HSD	**40.175**	**1.4442**	**0.2784**	**0.1120**	**1.6412**

Table 20. 2015 Mid-Season White Supersweet Trial: Plant Characteristics

Variety	Plant Height (cm)		Height of 1st Ear (cm)	
WSS 3681	241	a	82	b
CSHWP 9-371	234	b	80	b
XP 08705770	227	c	97	a
CSAWP 11-456	219	d	62	d
Devotion	214	d	73	c
XTH3174	206	e	56	ef
SV1580SC	204	ef	61	de
Ice Queen	202	ef	59	def
378A	202	ef	62	d
Glacial	199	fg	56	ef
7401 Imp	196	g	49	g
Placer (HMX 2348WS)	191	h	55	f
p-value	***<0.0001***		***<0.0001***	
LSD	**5.2467**		**5.3317**	
Tukey's HSD	**8.7761**		**8.9184**	

Appendix A: Weather Conditions During the Early Yellow Supersweet Trial and the Mid-Season White Supersweet Trial

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

Date	Air Temp °F		GDD*	Rain (in)	Soil Temp °F		Accumulated Values					
							Early Yellow Supersweet			Mid White Supersweet		
	Max	Min			Max	Min	DAP	GDD	Rain	DAP	GDD	Rain
17-Apr	74.8	53.7	14.2	0.12	63.8	56.7	0	0	0.12			
18-Apr	76.6	54.6	15.6	0.05	69.3	58.5	1	16	0.17			
19-Apr	60.7	51.5	6.1	0.00	64.1	58.9	2	22	0.17			
20-Apr	76	55.2	15.6	1.27	65.7	58.7	3	37	1.44			
21-Apr	70.1	49.8	9.9	0.00	65.4	61	4	47	1.44			
22-Apr	72.2	42.7	7.4	0.00	62.5	56.3	5	55	1.44			
23-Apr	56.2	41.9	0.0	0.00	59.5	54.8	6	55	1.44			
24-Apr	56	38.4	0.0	0.00	58.2	51.5	7	55	1.44			
25-Apr	50.6	34.3	0.0	0.27	54	50	8	55	1.71			
26-Apr	62.2	40.8	1.5	0.02	62.2	50.5	9	56	1.73			
27-Apr	59.5	35.9	0.0	0.00	57.1	51.3	10	56	1.73			
28-Apr	67.3	46.2	6.7	0.00	60.1	51.1	11	63	1.73			
29-Apr	73.7	41.9	7.8	0.00	64.7	52.3	12	71	1.73			
30-Apr	70.8	49.7	10.2	0.00	63.8	55.7	13	81	1.73			
1-May	52.9	41.7	0.0	0.25	59.5	55.7	14	81	1.98			
2-May	70.7	39.9	5.3	0.00	64.9	52.5	15	86	1.98			
3-May	79.4	44.5	11.9	0.00	68.3	55.4	16	98	1.98			
4-May	82.7	50.5	16.6	0.00	67.9	57.9	17	115	1.98			
5-May	84.5	63.3	23.9	0.00	71.7	60.9	18	139	1.98			
6-May	78	54.9	16.4	0.00	71.8	63	19	155	1.98			
7-May	75.5	52.4	13.9	0.00	72.4	62.1	20	169	1.98			
8-May	79.8	55.1	17.4	0.00	74.6	63.9	21	186	1.98			
9-May	80.5	63.7	22.1	0.00	73.9	66.8	22	208	1.98			
10-May	84.8	64.7	24.7	0.01	74.7	67.4	23	233	1.99			
11-May	77.5	66.4	21.9	0.00	72.5	68.3	24	255	1.99			
12-May	88.8	64.5	25.2	0.00	76.3	67.5	25	280	1.99			
13-May	75.6	54.8	15.2	0.00	72.2	66.6	26	295	1.99			
14-May	69.1	48.7	8.9	0.00	74.7	62.4	27	304	1.99	0	0	0.00
15-May	74.4	48.2	11.3	0.00	73.7	62	28	316	1.99	1	11	0.00
16-May	84.1	59.3	21.7	0.09	74.9	64.8	29	337	2.08	2	33	0.09
17-May	83.5	67.8	25.6	0.02	75.8	68.3	30	363	2.10	3	59	0.11
18-May	87.2	67.1	26.5	0.83	77.1	68.7	31	389	2.93	4	85	0.94
19-May	83	66.4	24.7	0.48	79	69	32	414	3.41	5	110	1.42
20-May	72.4	53.9	13.1	0.00	75.7	68.6	33	427	3.41	6	123	1.42
21-May	55.9	49.1	2.5	0.79	68.9	61.6	34	430	4.20	7	125	2.21
22-May	72.2	48.1	10.1	0.00	70.4	58.9	35	440	4.20	8	136	2.21
23-May	70	48.2	9.1	0.00	73.8	60.4	36	449	4.20	9	145	2.21
24-May	78.3	48.3	13.3	0.00	73.7	61.4	37	462	4.20	10	158	2.21
25-May	81	59.2	20.1	0.00	74.9	64.8	38	482	4.20	11	178	2.21
26-May	84.6	62.7	23.6	0.00	77.1	66.7	39	506	4.20	12	202	2.21
27-May	86.3	68.4	27.2	0.00	78.6	70	40	533	4.20	13	229	2.21
28-May	85.1	68.2	26.6	0.00	79.4	71	41	560	4.20	14	255	2.21
29-May	83.6	65.7	24.6	0.00	80.9	71.5	42	584	4.20	15	280	2.21

Date	Air Temp °F		GDD*	Rain (in)	Soil Temp °F		Accumulated Values					
							Early Yellow Supersweet			Mid White Supersweet		
	Max	Min			Max	Min	DAP	GDD	Rain	DAP	GDD	Rain
30-May	84.9	65.9	25.4	0.00	80.3	71.4	43	610	4.20	16	305	2.21
31-May	87.5	67.1	26.5	0.00	80.9	71.7	44	636	4.20	17	332	2.21
1-Jun	88.7	69.3	27.6	0.27	82.8	73.2	45	664	4.47	18	360	2.48
2-Jun	69.5	56.2	12.8	0.65	76.8	68	46	677	5.12	19	372	3.13
3-Jun	58.4	55.2	6.8	1.10	68	64.7	47	683	6.22	20	379	4.23
4-Jun	60.4	57	8.7	0.14	65.7	63.8	48	692	6.36	21	388	4.37
5-Jun	65.9	57.6	11.7	0.01	67.8	63.3	49	704	6.37	22	400	4.38
6-Jun	76.2	58.2	17.2	0.04	71.7	65.3	50	721	6.41	23	417	4.42
7-Jun	74.4	53.9	14.1	0.00	76.1	64	51	735	6.41	24	431	4.42
8-Jun	83	57.4	20.2	0.00	76.1	66.4	52	755	6.41	25	451	4.42
9-Jun	85.3	69.1	27.2	0.02	79.4	70.6	53	782	6.43	26	478	4.44
10-Jun	83	61.2	22.1	0.00	80.3	70.6	54	805	6.43	27	500	4.44
11-Jun	91.3	64.6	25.3	0.00	82.2	70.7	55	830	6.43	28	526	4.44
12-Jun	92.4	72.8	29.4	0.00	83.9	74.2	56	859	6.43	29	555	4.44
13-Jun	88.7	74.8	30.4	0.00	84	76	57	890	6.43	30	585	4.44
14-Jun	87.9	72	29.0	0.14	84	76.3	58	919	6.57	31	614	4.58
15-Jun	88.1	72.9	29.4	0.00	83.5	75.7	59	948	6.57	32	644	4.58
16-Jun	92.8	73.1	29.5	0.01	84.7	76.2	60	978	6.58	33	673	4.59
17-Jun	80.4	66.1	23.2	0.00	85.6	75	61	1001	6.58	34	697	4.59
18-Jun	85.8	68.5	27.1	0.59	84.2	74.9	62	1028	7.17	35	724	5.18
19-Jun	86.3	69.5	27.7	0.10	82.8	75.3	63	1056	7.27	36	751	5.28
20-Jun	87.4	71.7	28.8	0.14	85.6	75.8	64	1084	7.41	37	780	5.42
21-Jun	88.4	71	28.5	0.97	84.1	76.3	65	1113	8.38	38	809	6.39
22-Jun	88.5	72.3	29.1	0.00	87.2	76.9	66	1142	8.38	39	838	6.39
23-Jun	93.1	70.4	28.2	0.41	87.4	78	67	1170	8.79	40	866	6.80
24-Jun	81.5	65.7	23.6	0.00	85.3	77.2	68	1194	8.79	41	890	6.80
25-Jun	84.5	61.4	22.9	0.18	85	74.6	69	1217	8.97	42	912	6.98
26-Jun	75.9	64.7	20.3	0.65	79.5	75.9	70	1237	9.62	43	933	7.63
27-Jun	75.8	63.4	19.6	0.35	76.1	73.6	71	1257	9.97	44	952	7.98
28-Jun	79.8	67.6	23.7	0.11	80.7	74.1	72	1280	10.08	45	976	8.09
29-Jun	80.9	60.9	20.9	0.00	81.9	72	73	1301	10.08	46	997	8.09
30-Jun	85.5	65	25.2	0.02	81.8	73.8	74	1326	10.10	47	1022	8.11
1-Jul	85.4	68.3	26.8	0.00	83.6	75.3	75	1353	10.10	48	1049	8.11
2-Jul	73.3	65.3	19.3	0.89	79.9	74.9	76	1372	10.99	49	1068	9.00
3-Jul	80.7	60.6	20.6	0.00	80.8	72.3	77	1393	10.99	50	1089	9.00
4-Jul	80	68.7	24.3	0.04	80.7	75.1	78	1417	11.03	51	1113	9.04
5-Jul	83.6	66.1	24.8	0.00	84	74.9	79	1442	11.03	52	1138	9.04
6-Jul	87.8	70.8	28.4	0.10	83.2	77.2	80	1471	11.13	53	1166	9.14
7-Jul	87.9	73.6	29.8	0.00	84.4	78	81	1500	11.13	54	1196	9.14
8-Jul	88.3	74.6	30.3	0.06	83.4	78.5	82	1531	11.19	55	1226	9.20
9-Jul	89.1	73.1	29.5	0.00	84.7	78.5	83	1560	11.19	56	1256	9.20
10-Jul	83.8	70.4	27.1	0.00	84	78.4	84	1587	11.19	57	1283	9.20
11-Jul	80.8	66.4	23.6	0.02	82.7	77.9	85	1611	11.21	58	1307	9.22
12-Jul	84.6	62.2	23.4	0.00	83.3	75.5	86	1634	11.21	59	1330	9.22
13-Jul	84.3	65.6	24.9	0.07	82.3	76.6	87	1659	11.28	60	1355	9.29
14-Jul	83.8	71.7	27.7	0.13	80.6	77.1	88	1687	11.41	61	1383	9.42
15-Jul	78.9	71.1	25.0	0.03	80	77	89	1712	11.44	62	1408	9.45
16-Jul	77.8	63.2	20.5	0.00	81.2	74.4	90	1732	11.44	63	1428	9.45
17-Jul	82.3	58.6	20.4	0.00	82.2	72.8	91	1753	11.44	64	1449	9.45
18-Jul	87.8	67.9	26.9	0.00	83.4	75.5	92	1780	11.44	65	1475	9.45

Date	Air Temp °F		GDD*	Rain (in)	Soil Temp °F		Accumulated Values					
							Early Yellow Supersweet			Mid White Supersweet		
	Max	Min			Max	Min	DAP	GDD	Rain	DAP	GDD	Rain
19-Jul	93.2	71.5	28.7	0.00	86.5	77.3	93	1808	11.44	66	1504	9.45
20-Jul	94.3	76.4	31.2	0.00	87.7	79.6	94	1840	11.44	67	1535	9.45
21-Jul	89.6	74.7	30.3	0.39	84.5	80	95	1870	11.83	68	1566	9.84
22-Jul	84.1	67.5	25.8	0.00	85	77.3				69	1591	9.84
23-Jul	82.5	63.3	22.9	0.00	83.9	75.8				70	1614	9.84
24-Jul	84.2	57.9	21.0	0.00	84.5	74.2				71	1635	9.84
25-Jul	86.3	58.7	22.3	0.00	84.3	74.2				72	1658	9.84
26-Jul	87.6	66	26.0	0.00	84.8	75.6				73	1684	9.84
27-Jul	84.2	69.4	26.8	1.17	82.1	76.3				74	1710	11.01
28-Jul	91.1	69.3	27.6	0.03	86.2	76.6				75	1738	11.04
29-Jul	87.6	69.6	27.8	0.00	84.7	77.7				76	1766	11.04
30-Jul	89.2	74	30.0	0.01	84.9	78.7				77	1796	11.05
31-Jul	88.2	68.5	27.2	0.01	85.2	78.1				78	1823	11.06
1-Aug	90.3	66	26.0	0.15	84.5	76.7				79	1849	11.21
2-Aug	88.3	65.9	25.9	0.00	85.7	76.5				80	1875	11.21
3-Aug	89.1	64.9	25.4	0.00	84.3	76.1				81	1900	11.21
4-Aug	90.8	71	28.5	0.79	86.1	78.6				82	1929	12.00
5-Aug	87.6	67.4	26.7	0.64	84.1	76.6				83	1956	12.64

*** Base 50°F Growing Degree Days with max of 86°F.**

Appendix B: Weather Conditions During the Early Yellow Sugary Trial

Weather Data from DEOS Weather Station (http://www.deos.udel.edu/index.html) at Laurel Airport, Laurel, DE (0.4 miles from the trial location)

Date	Air Temp (°F)		GDD*	Rain (in)	Soil Temp (°F)		Accumulated Values		
	Max	Min			Max	Min	DAP	GDD	Rain
24-Apr	56.7	37.9	0.0	0.00	60.1	52.2	0	0.0	0.00
25-Apr	50.1	35.6	0.0	0.32	54.6	51.5	1	0.0	0.32
26-Apr	63.0	41.1	2.0	0.02	60.5	51.4	2	2.0	0.34
27-Apr	60.7	35.5	0.0	0.00	58.3	51.3	3	2.0	0.34
28-Apr	67.2	45.5	6.3	0.00	61.5	51.9	4	8.3	0.34
29-Apr	73.3	40.7	7.0	0.00	64.6	52.8	5	15.3	0.34
30-Apr	73.0	50.6	11.8	0.00	63.2	55.6	6	27.1	0.34
1-May	53.6	42.7	0.0	0.18	58.4	55.0	7	27.1	0.52
2-May	71.7	39.9	5.8	0.00	64.5	52.6	8	32.9	0.52
3-May	80.8	43.9	12.3	0.00	66.8	54.7	9	45.2	0.52
4-May	81.5	49.8	15.6	0.00	66.2	56.4	10	60.8	0.52
5-May	82.6	62.3	22.4	0.00	69.7	59.1	11	83.2	0.52
6-May	79.8	54.7	17.2	0.00	70.0	60.8	12	100.4	0.52
7-May	78.4	53.8	16.1	0.00	70.4	60.6	13	116.5	0.52
8-May	82.0	55.4	18.7	0.00	72.2	62.0	14	135.2	0.52
9-May	83.5	64.2	23.8	0.00	73.9	64.5	15	159.0	0.52
10-May	84.0	64.3	24.1	0.00	71.9	65.2	16	183.1	0.52
11-May	77.6	65.6	21.6	0.00	70.6	65.6	17	204.7	0.52
12-May	88.4	65.1	25.5	0.00	73.6	65.2	18	230.2	0.52
13-May	75.3	55.6	15.4	0.00	70.4	64.0	19	245.6	0.52
14-May	70.2	49.5	9.8	0.00	71.6	60.8	20	255.4	0.52
15-May	75.2	46.7	10.9	0.00	71.5	60.3	21	266.3	0.52
16-May	82.9	57.9	20.4	0.16	72.6	62.9	22	286.7	0.68
17-May	83.1	67.5	25.3	0.06	75.4	66.5	23	312.0	0.74
18-May	89.2	66.8	26.4	0.18	79.3	67.0	24	338.4	0.92
19-May	83.2	66.3	24.7	0.41	78.1	68.3	25	363.1	1.33
20-May	72.2	54.5	13.3	0.00	77.9	67.8	26	376.4	1.33
21-May	56.1	49.0	2.5	0.96	68.9	61.5	27	378.9	2.29
22-May	72.6	48.2	10.4	0.01	70.4	59.5	28	389.3	2.30
23-May	70.4	50.2	10.3	0.00	71.9	60.8	29	399.6	2.30
24-May	78.4	47.8	13.1	0.00	71.2	61.1	30	412.7	2.30
25-May	81.1	58.7	19.9	0.00	71.3	63.6	31	432.6	2.30
26-May	84.2	60.4	22.3	0.00	73.4	64.4	32	454.9	2.30
27-May	86.2	69.1	27.5	0.00	74.8	67.6	33	482.4	2.30
28-May	85.9	69.0	27.4	0.00	75.8	68.6	34	509.8	2.30
29-May	85.3	64.8	25.0	0.33	75.4	68.4	35	534.8	2.63
30-May	84.5	63.4	23.9	0.00	77.2	67.0	36	558.7	2.63
31-May	87.2	67.2	26.6	0.00	78.2	68.7	37	585.3	2.63
1-Jun	87.7	68.7	27.3	0.31	79.6	70.5	38	612.6	2.94
2-Jun	68.8	56.5	12.6	1.42	71.2	67.2	39	625.2	4.36
3-Jun	59.6	55.2	7.4	0.35	67.2	63.8	40	632.6	4.71
4-Jun	61.4	57.1	9.2	0.10	64.9	63.5	41	641.8	4.81
5-Jun	66.9	57.6	12.2	0.03	67.2	63.0	42	654.0	4.84
6-Jun	78.1	57.8	17.9	0.50	72.3	65.1	43	671.9	5.34
7-Jun	74.6	53.8	14.2	0.01	74.8	63.4	44	686.1	5.35
8-Jun	82.2	56.7	19.4	0.00	74.1	65.4	45	705.5	5.35

Date	Air Temp (°F)		GDD*	Rain	Soil Temp (°F)		Accumulated Values		
	Max	Min		(in)	Max	Min	DAP	GDD	Rain
9-Jun	84.4	68.9	26.6	0.02	76.6	68.8	46	732.1	5.37
10-Jun	82.8	60.1	21.4	0.00	77.6	68.0	47	753.5	5.37
11-Jun	89.6	62.1	24.0	0.00	78.6	68.4	48	777.5	5.37
12-Jun	91.0	72.5	29.2	0.00	78.3	71.6	49	806.7	5.37
13-Jun	89.0	72.6	29.3	0.00	80.6	72.5	50	836.0	5.37
14-Jun	90.4	72.1	29.0	1.01	82.3	73.8	51	865.0	6.38
15-Jun	88.1	72.2	29.1	0.00	81.8	74.2	52	894.1	6.38
16-Jun	91.2	71.7	28.8	0.00	82.7	74.6	53	922.9	6.38
17-Jun	82.1	66.7	24.4	0.00	81.7	73.8	54	947.3	6.38
18-Jun	87.1	69.1	27.5	0.29	82.6	74.1	55	974.8	6.67
19-Jun	85.4	70.5	27.9	0.01	82.7	75.2	56	1002.7	6.68
20-Jun	88.0	71.2	28.6	0.36	83.9	75.4	57	1031.3	7.04
21-Jun	87.9	70.4	28.2	1.00	84.6	75.5	58	1059.5	8.04
22-Jun	88.2	70.5	28.2	0.10	86.2	76.0	59	1087.7	8.14
23-Jun	92.8	70.0	28.0	0.20	85.2	77.1	60	1115.7	8.34
24-Jun	80.8	65.4	23.1	0.27	84.4	76.3	61	1138.8	8.61
25-Jun	85.3	60.8	23.0	0.21	83.9	74.0	62	1161.8	8.82
26-Jun	76.3	65.6	20.9	0.74	78.9	75.2	63	1182.7	9.56
27-Jun	77.0	63.9	20.4	0.94	75.7	73.1	64	1203.1	10.50
28-Jun	78.8	65.7	22.2	0.02	80.1	73.7	65	1225.3	10.52
29-Jun	79.9	57.6	18.7	0.00	81.7	71.1	66	1244.0	10.52
30-Jun	86.6	63.1	24.5	0.12	80.5	72.6	67	1268.5	10.64
1-Jul	83.7	67.2	25.4	0.00	82.6	74.0	68	1293.9	10.64
2-Jul	73.6	63.9	18.7	1.20	77.3	72.7	69	1312.6	11.84
3-Jul	81.8	60.0	20.9	0.00	80.1	71.0	70	1333.5	11.84
4-Jul	80.6	68.2	24.4	0.03	79.0	73.7	71	1357.9	11.87
5-Jul	85.9	67.9	26.9	0.00	82.5	74.0	72	1384.8	11.87
6-Jul	88.1	71.3	28.6	0.00	83.7	75.6	73	1413.4	11.87
7-Jul	87.0	72.5	29.2	0.00	84.4	76.2	74	1442.6	11.87
8-Jul	87.4	73.7	29.8	0.00	81.8	76.8	75	1472.4	11.87
9-Jul	89.7	72.2	29.1	0.00	84.2	76.5	76	1501.5	11.87
10-Jul	83.9	69.0	26.4	0.00	83.8	77.0	77	1527.9	11.87

Appendix C: Weather Conditions During the Mid-Season Yellow Supersweet Trial

Weather Data from DEOS Weather Station (http://www.deos.udel.edu/index.html) at Harbeson, DE (4.3 miles from the trial location)

Date	Air Temp (°F)		GDD*	Rain	Soil Temp (°F)		Accumulated Values		
	Max	Min		(in)	Max	Min	DAP	GDD	Rain
11-May	80.3	65.0	22.6	0.03	75.9	68.2	0	0.0	0.03
12-May	89.5	63.7	24.8	0.00	82.1	66.4	1	24.8	0.03
13-May	74.8	55.1	14.9	0.00	76.0	64.3	2	39.7	0.03
14-May	67.3	46.5	6.9	0.00	79.5	59.5	3	46.6	0.03
15-May	73.8	43.7	8.7	0.00	77.3	58.9	4	55.3	0.03
16-May	86.4	59.1	22.5	0.02	80.0	63.7	5	77.8	0.05
17-May	83.7	66.6	25.1	0.06	81.7	68.5	6	102.9	0.11
18-May	84.7	65.5	25.1	0.00	86.4	68.3	7	128.0	0.11
19-May	83.0	66.0	24.5	0.20	83.2	70.0	8	152.5	0.31
20-May	71.0	53.4	12.2	0.00	82.5	65.4	9	164.7	0.31
21-May	57.8	46.8	2.3	0.72	66.3	60.0	10	167.0	1.03
22-May	72.4	47.5	9.9	0.00	74.5	55.7	11	176.9	1.03
23-May	68.2	47.8	8	0.00	76.6	56.3	12	184.9	1.03
24-May	81.0	46.2	13.6	0.00	78.2	56.4	13	198.5	1.03
25-May	83.8	58.7	21.2	0.00	79.6	62.1	14	219.7	1.03
26-May	87.2	62.8	24.4	0.00	81.6	64.7	15	244.1	1.03
27-May	86.3	68.3	27.1	0.00	84.6	68.8	16	271.2	1.03
28-May	87.1	68.0	27	0.00	82.8	70.3	17	298.2	1.03
29-May	81.6	65.1	23.3	0.00	85.2	70.0	18	321.5	1.03
30-May	86.6	64.7	25.3	0.00	85.4	70.4	19	346.8	1.03
31-May	89.3	67.9	26.9	0.00	85.7	71.4	20	373.7	1.03
1-Jun	90.4	68.5	27.2	0.38	85.5	73.1	21	400.9	1.41
2-Jun	69.0	55.1	12	0.48	74.7	63.8	22	412.9	1.89
3-Jun	57.9	54.8	6.3	0.58	64.3	61.9	23	419.2	2.47
4-Jun	60.0	56.6	8.3	0.23	63.8	61.3	24	427.5	2.70
5-Jun	63.8	57.5	10.6	0.06	67.3	61.2	25	438.1	2.76
6-Jun	75.7	57.2	16.4	0.21	73.1	62.7	26	454.5	2.97
7-Jun	71.9	51.7	11.8	0.00	75.9	60.8	27	466.3	2.97
8-Jun	84.8	56.5	20.6	0.00	77.8	63.8	28	486.9	2.97
9-Jun	84.8	68.3	26.5	0.01	80.6	69.1	29	513.4	2.98
10-Jun	82.0	60.2	21.1	0.00	79.8	67.8	30	534.5	2.98
11-Jun	91.1	62.6	24.3	0.00	82.9	67.6	31	558.8	2.98
12-Jun	92.2	70.9	28.4	0.00	84.0	72.1	32	587.2	2.98
13-Jun	89.4	72.2	29.1	0.00	85.7	74.6	33	616.3	2.98
14-Jun	85.2	70.1	27.6	0.11	84.7	74.9	34	643.9	3.09
15-Jun	87.6	71.5	28.7	0.00	83.9	74.8	35	672.6	3.09
16-Jun	92.0	71.3	28.6	0.01	84.5	75.2	36	701.2	3.10
17-Jun	79.1	67.5	23.3	0.00	82.9	73.4	37	724.5	3.10
18-Jun	82.8	67.9	25.3	0.41	81.6	73.4	38	749.8	3.51
19-Jun	85.0	68.6	26.8	0.02	82.0	74.0	39	776.6	3.53
20-Jun	85.9	69.9	27.9	0.06	83.2	74.7	40	804.5	3.59
21-Jun	87.5	71.0	28.5	1.04	84.2	75.2	41	833.0	4.63
22-Jun	87.9	70.7	28.3	0.00	85.9	75.9	42	861.3	4.63
23-Jun	92.8	69.2	27.6	0.98	86.2	76.5	43	888.9	5.61

Date	Air Temp (°F)		GDD*	Rain	Soil Temp (°F)		Accumulated Values		
	Max	Min		(in)	Max	Min	DAP	GDD	Rain
24-Jun	81.9	63.1	22.5	0.00	84.3	75.6	44	911.4	5.61
25-Jun	83.2	59.7	21.4	0.14	84.5	72.5	45	932.8	5.75
26-Jun	76.1	61.7	18.9	0.53	79.4	73.2	46	951.7	6.28
27-Jun	74.9	61.2	18	0.53	73.5	71.6	47	969.7	6.81
28-Jun	78.9	66.6	22.7	0.04	81.6	72.9	48	992.4	6.85
29-Jun	80.1	57.6	18.8	0.00	83.1	69.2	49	1011.2	6.85
30-Jun	83.9	62.5	23.2	0.24	84.1	71.3	50	1034.4	7.09
1-Jul	84.2	67.2	25.7	0.00	86.3	73.8	51	1060.1	7.09
2-Jul	73.3	64.8	19	1.06	78.2	71.8	52	1079.1	8.15
3-Jul	78.4	59.7	19	0.00	82.0	70.0	53	1098.1	8.15
4-Jul	78.8	67.0	22.9	0.01	79.3	73.4	54	1121.0	8.16
5-Jul	80.6	64.2	22.4	0.00	83.9	72.0	55	1143.4	8.16
6-Jul	87.4	69.9	27.9	0.00	86.8	75.1	56	1171.3	8.16
7-Jul	87.7	71.2	28.6	0.00	87.5	76.1	57	1199.9	8.16
8-Jul	88.1	72.8	29.4	0.02	85.8	77.3	58	1229.3	8.18
9-Jul	88.3	71.4	28.7	0.00	87.4	77.3	59	1258.0	8.18
10-Jul	84.0	68.4	26.2	0.00	87.0	76.9	60	1284.2	8.18
11-Jul	83.3	64.8	24	0.01	84.9	76.2	61	1308.2	8.19
12-Jul	82.7	59.6	21.1	0.00	84.0	72.7	62	1329.3	8.19
13-Jul	82.2	63.1	22.6	0.00	82.8	73.5	63	1351.9	8.19
14-Jul	84.0	71.0	27.5	0.02	81.7	75.7	64	1379.4	8.21
15-Jul	77.5	70.4	23.9	0.18	80.4	75.2	65	1403.3	8.39
16-Jul	76.0	60.9	18.4	0.00	80.1	72.9	66	1421.7	8.39
17-Jul	79.4	55.8	17.6	0.00	82.1	69.3	67	1439.3	8.39
18-Jul	87.8	67.9	26.9	0.00	82.8	73.6	68	1466.2	8.39
19-Jul	92.7	68.7	27.3	0.00	87.3	74.5	69	1493.5	8.39
20-Jul	92.0	73.6	29.8	0.00	87.7	77.5	70	1523.3	8.39
21-Jul	90.1	72.1	29	0.59	86.2	77.6	71	1552.3	8.98
22-Jul	83.5	65.1	24.3	0.00	87.3	74.5	72	1576.6	8.98
23-Jul	82.4	61.1	21.7	0.00	86.0	72.9	73	1598.3	8.98
24-Jul	83.0	56.0	19.5	0.00	85.4	70.8	74	1617.8	8.98
25-Jul	84.2	55.8	20	0.00	85.5	70.8	75	1637.8	8.98
26-Jul	87.7	61.3	23.6	0.00	87.0	72.4	76	1661.4	8.98
27-Jul	84.5	67.5	26	0.54	84.1	74.7	77	1687.4	9.52
28-Jul	85.4	67.7	26.5	0.00	86.3	74.5	78	1713.9	9.52
29-Jul	86.8	67.0	26.5	0.07	87.1	75.1	79	1740.4	9.59
30-Jul	89.0	70.8	28.4	0.01	88.2	75.9	80	1768.8	9.60