

**UNIVERSITY OF  
DELAWARE**



# **SWEET CORN**

**VARIETY**

**TRIAL**

**RESULTS**

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## Table of Contents

<b>Acknowledgements</b> .....	1
<b>Introduction</b> .....	2
<b>Materials and Methods</b> .....	2
<b>Discussion of Trial Results</b> .....	3
<b>Trial Results</b> .....	4
<b>Table 1. Stand Counts for Sugary Enhanced Varieties 27 DAP</b> .....	4
<b>Table 2. Stand Counts for Supersweet Varieties 28 DAP</b> .....	4
<b>Table 3. Harvest Data for Sugary Enhanced Varieties</b> .....	5
<b>Table 4. Harvest Data for Supersweet Varieties</b> .....	5
<b>Table 5. Ear Characteristics for Sugary Enhanced Varieties</b> .....	6
<b>Table 6. Ear Characteristics for Supersweet Varieties</b> .....	6
<b>Table 7. Plant Characteristics Sugary Enhanced Varieties</b> .....	7
<b>Table 8. Plant Characteristics of Supersweet Varieties</b> .....	7
<b>Appendix A: Photos of 2006 Processing Sweet Corn Trial Entries</b> .....	8
<b>Sugary Enhanced Varieties</b> .....	8
<b>Supersweet Varieties</b> .....	10
<b>Appendix B: Weather Summary for the 2006 Growing Season</b> .....	12

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## 2006 University of Delaware Processing Sweet Corn Variety Trial

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### Introduction

The 2006 Processing Sweet Corn Variety trial was conducted at the University of Delaware Research and Education Center in Georgetown, DE. The purpose of this trial was to evaluate new sugary enhanced and supersweet, yellow, processing sweet corn varieties for yield and quality factors under Delaware growing conditions. Similar trials were conducted in Delaware in 1999, 2000, and 2002.

The sugary enhanced varieties were planted in a separate field from the supersweet varieties to meet isolation requirements. Consequently, se varieties were only statistically compared with the other se varieties and supersweet varieties compared with other supersweet varieties. Results are reported as two separate trials.

### Materials and Methods

#### Planting and Crop Management

Six varieties were planted in the sugary enhanced trial and eight in the supersweet trial.

Planting Date: Sugary Enhanced Trial – April 26, 2006  
Supersweet Trial – April 25, 2006

Fertilizer: Applied 200 lbs/A of 0-0-60 prior to planting. Applied 19-18.5-0-3 (N-P-K-S) starter fertilizer 2x2 at 12.5 gallons/A at planting. Sidedressed with 37 gallons/A of 30% UAN.

Weed Control: Applied Bicep II Magnum at 1.6 quarts/A pre-emergence. Plots were cultivated twice.

Planting: Trials were planted using a Monosem 4-row planter. Rows were spaced 30 inches apart and seeds in the row were spaced 8 inches apart.

Plot Design: 4-row plots, 75 feet in length were arranged in a randomized complete block design with three replications.

Irrigation: Sugary Enhanced Trial – stationary gun – 1 to 1.5 inches/week as needed  
Supersweet Trial – overhead sprinkler irrigation – 1 to 1.5 inches/week as needed

Insecticide: Applied Force 3G at 5.5 lbs/A in the furrow at planting. Applied Warrior at 3.84 fl. oz./A on July 1, 5, 8, 12, 15, 19, and 22.

## Varieties Entered in the 2006 Processing Sweet Corn Variety Trial

Variety	Company	Isolation Group
GH8267	Syngenta - Rogers	Sugary Enhanced
6223	Syngenta - Rogers	Sugary Enhanced
6462	Syngenta - Rogers	Sugary Enhanced
Bonus (check)	Syngenta - Rogers	Sugary Enhanced
Tamarack	Crookham Co.	Sugary Enhanced
CSUYP2-28	Crookham Co.	Sugary Enhanced
ACX 725Y	Abbott & Cobb, Inc.	Supersweet
Protégé	Syngenta - Rogers	Supersweet
ACX 1262	Abbott & Cobb, Inc.	Supersweet
ACX 1138	Abbott & Cobb, Inc.	Supersweet
ACcentuate	Abbott & Cobb, Inc.	Supersweet
SS Jubilee Plus (check)	Syngenta - Rogers	Supersweet
Overland	Syngenta - Rogers	Supersweet
Magnum II (GSS-2718)	Syngenta - Rogers	Supersweet

### Harvest Procedure

Before harvest a thirty-foot section in one of the two center rows of the plot was flagged and designated for harvest. On July 10<sup>th</sup> (75 or 76 DAP) the plants in the harvest section were counted and plant height and height to the first ear was determined for ten plants in each plot.

Harvest began on July 18<sup>th</sup> (83 or 84 DAP) and was completed on July 28<sup>th</sup> (93 or 94 DAP). Ears were hand harvested from the thirty-foot harvest section. Ears were counted and weighed in-husk and husked. The corn was cut from the ears using a commercial cutter and the percent moisture was measured using a CEM Smart System microwave moisture analyzer.

The ear length, ear diameter, row number and kernel depth was determined for a sample of five ears from each plot.

### Discussion of Trial Results

Plants emerged well and there were no significant differences in stand between the varieties (Tables 1 and 2). Harvest and yield data for the varieties are given in Tables 3 and 4. Varieties are ordered according to the weight of cut corn. Tables 5 and 6 present ear characteristic data based on a 15 ear sample (5 ears from each replication). Tables 7 and 8 present data on plant height and the height of the first ear from the ground. Photographs of each variety are in Appendix A.

A weather summary for the 2006 growing season is found in Appendix B. The growing season began very dry with less than 1.2 inches of rain recorded from April 25<sup>th</sup> to June 1<sup>st</sup>. Two major rain events occurred in June. On June 2 the research farm received 3.96 inches of rain and on June 25, 5.26 inches. The June 25 rainfall was followed by >2 additional inches of rain over the next three days. The excessive rainfall of late June flooded the third replication of the sugary enhanced trial plot and delayed maturity in that area of the field. Consequently, the third

replications of most of the varieties in the sugary enhanced trial were harvested three to four days after the first two replications were harvested.

The highest yielding sugary enhanced varieties were Tamarack, Bonus, and CSUYP2-28. However the percent moisture at harvest for the se varieties was not as consistent as would be desirable for good comparison (range of 67.5% to 76.5%) due to the differing rates of maturity between replications. Percent moisture at harvest was much more consistent in the supersweet trial, with a range of 75.0 % to 77.7%. The highest yielding supersweet varieties were Overland, SS Jubilee Plus, and Magnum II.

## Trial Results

**Table 1. Stand Counts for Sugary Enhanced Varieties 27 DAP**

Variety	Plants/20 ft. of Row	In-Row Spacing (inches)	Plants/A
Bonus	31.7 a	8	26135
6462	31.5 a	8	26135
CSUYP2-28	30.7 a	8	26135
GH8267	30.0 a	8	26135
6223	29.8 a	8	26135
Tamarack	28.5 a	8	26135
<b>LSD</b>	<b>NS</b>		
<i>p-value</i>	<i>0.0950</i>		

**Table 2. Stand Counts for Supersweet Varieties 28 DAP**

Variety	Plants/20 ft. of Row	In-Row Spacing (inches)	Plants/A
ACcentuate	32.3 a	7	29868
Overland	31.5 a	8	26135
ACX 1262	30.0 a	8	26135
Magnum II	29.8 a	8	26135
Protégé	29.2 a	8	26135
ACX 725Y	28.8 a	8	26135
SS Jubilee Plus	27.5 a	9	23231
ACX 1138	27.2 a	9	23231
<b>LSD</b>	<b>NS</b>		
<i>p-value</i>	<i>0.0665</i>		

**Table 3. Harvest Data for Sugary Enhanced Varieties**

Variety	Days to Harvest	Weight Unhusked Ears/A (tons)	Weight Husked Ears/A (tons)	Weight Cut Corn/A (lbs)	% Recovery	% Moisture	# Ears/A	Ears/Plant
Tamarack	87	9.833 a	6.356 a	6854 a	35.1 a	68.6 b	24394 a	0.92 a
Bonus	90	8.692 ab	6.100 ab	6400 a	37.0 a	67.5 b	25362 a	0.80 a
CSUYP2-28	86	8.402 ab	5.345 ab	5777 a	34.5 a	72.9 a	24200 a	0.92 a
6223	85	7.547 b	4.954 bc	5376 a	35.2 a	74.6 a	23232 a	0.96 a
6462	87	5.369 c	3.715 cd	3814 b	35.6 a	73.5 a	17617 a	0.70 a
GH8267	84	5.469 c	3.338 d	2973 b	27.5 b	76.5 a	20522 a	0.78 a
<b>LSD</b>		<b>1.895</b>	<b>1.296</b>	<b>1484.8</b>	<b>4.66</b>	<b>3.62</b>	<b>NS</b>	<b>NS</b>
<i>p-value</i>		<i>0.0018</i>	<i>0.0019</i>	<i>0.0011</i>	<i>0.0138</i>	<i>0.0016</i>	<i>0.2602</i>	<i>0.3578</i>

**Table 4. Harvest Data for Supersweet Varieties**

Variety	Days to Harvest	Weight Unhusked Ears/A (tons)	Weight Husked Ears/A (tons)	Weight Cut Corn/A (lbs)	% Recovery	% Moisture	# Ears/A	Ears/Plant
Overland	94	8.456 a	6.652 a	7438 a	43.9 a	76.2 bc	24200 a	0.82 a
SS Jubilee Plus	91	8.108 a	5.726 ab	6683 a	41.7 ab	76.0 c	23038 a	0.89 a
Magnum II (GSS-2718)	91	8.164 a	5.541 ab	6017 ab	36.8 c	77.4 ab	19941 a	0.84 a
ACX 1138	86	6.211 b	4.585 bc	4852 bc	39.1 bc	77.3 ab	23232 a	1.00 a
ACX 1262	90	5.769 b	4.106 c	4840 bc	42.4 ab	75.0 c	18586 a	0.70 a
ACX 725Y	84	6.147 b	4.207 c	4801 bc	38.9 bc	75.0 c	23038 a	0.95 a
Protégé	90	5.618 b	4.220 c	4705 bc	41.6 ab	77.3 ab	20328 a	0.90 a
ACcentuate	86	7.161 ab	4.691 bc	4313 c	29.9 d	77.7 a	23038 a	0.91 a
<b>LSD</b>		<b>1.8857</b>	<b>1.2683</b>	<b>1634.2</b>	<b>4.12</b>	<b>1.2831</b>	<b>NS</b>	<b>NS</b>
<i>p-value</i>		<i>0.0218</i>	<i>0.0063</i>	<i>0.0095</i>	<i>0.0001</i>	<i>0.0013</i>	<i>0.4302</i>	<i>0.2153</i>

**Table 5. Ear Characteristics for Sugary Enhanced Varieties**

Variety	Ear Weight (lbs)	Ear Length (cm)	Ear Diameter (cm)	Kernel Depth (cm)	Mean Number of Rows	Median Number of Rows
Tamarack	0.52 a	20.9 a	4.6 ab	1.0 a	16.8 bc	16
Bonus	0.48 ab	18.8 c	4.6 a	1.3 a	17.9 ab	18
CSUYP2-28	0.44 ab	19.1 bc	4.3 c	0.8 a	18.9 a	18
6462	0.43 ab	19.9 bc	4.5 ab	0.9 a	18.4 a	18
6223	0.42 b	19.9 bc	4.3 bc	0.8 a	16.3 c	16
GH8267	0.33 c	19.2 bc	4.0 d	0.8 a	16.4 c	16
<b>LSD</b>	<b>0.090</b>	<b>0.997</b>	<b>0.2354</b>	<b>NS</b>	<b>1.13</b>	
<i>p-value</i>	<i>0.0154</i>	<i>0.0007</i>	<i>&lt;0.0001</i>	<i>0.0860</i>	<i>&lt;0.0001</i>	

**Table 6. Ear Characteristics for Supersweet Varieties**

Variety	Ear Weight (lbs)	Ear Length (cm)	Ear Diameter (cm)	Kernel Depth (cm)	Mean Number of Rows	Median Number of Rows
Magnum II (GSS-2718)	0.56 a	21.9 a	4.5 ab	0.9 ab	17.6 a	18
Overland	0.55 a	21.0 ab	4.6 a	1.0 a	16.9 abc	16
SS Jubilee Plus	0.50 ab	21.1 ab	4.5 ab	1.0 a	15.6 d	16
ACcentuate	0.41 cd	19.5 cd	4.0 c	0.8 d	15.9 cd	16
ACX 1138	0.40 cd	20.4 bc	4.3 b	0.8 bcd	17.1 ab	16
ACX 1262	0.46 bc	21.4 ab	4.5 ab	1.0 ab	16.5 abcd	16
Protégé	0.41 cd	18.9 de	4.4 ab	0.9 abc	16.3 bcd	16
ACX 725Y	0.36 d	18.0 e	4.1 c	0.8 cd	14.1 e	14
<b>LSD</b>	<b>0.071</b>	<b>1.067</b>	<b>0.211</b>	<b>0.118</b>	<b>1.18</b>	
<i>p-value</i>	<i>0.0002</i>	<i>&lt;0.0001</i>	<i>&lt;0.0001</i>	<i>&lt;0.0001</i>	<i>&lt;0.0001</i>	



**Table 7. Plant Characteristics Sugary Enhanced Varieties**

Variety	Plant Height (inches)	Ear Height (inches)
6223	87 a	27 a
6462	82 b	23 bc
Tamarack	80 bc	20 d
GH8267	80 c	24 b
CSUYP2-28	76 d	22 cd
Bonus	76 d	25 ab
<b>LSD</b>	<b>2.25</b>	<b>2.25</b>
<i>p-value</i>	<0.0001	<0.0001

**Table 8. Plant Characteristics of Supersweet Varieties**

Variety	Plant Height (inches)	Ear Height (inches)
Magnum II	77 a	17 b
SS Jubilee Plus	72 b	16 b
Overland	70 bc	21 a
ACcentuate	68 c	19 a
Protégé	62 d	14 c
ACX 1138	59 de	14 c
ACX 1262	59 e	13 c
ACX 725Y	48 f	10 d
<b>LSD</b>	<b>2.68</b>	<b>1.73</b>
<i>p-value</i>	<0.0001	<0.0001

# Appendix A: Photos of 2006 Processing Sweet Corn Trial Entries

## Sugary Enhanced Varieties



**GH8267** 81(84)\*  
*Syngenta - Rogers*



**6223** 83(85)  
*Syngenta - Rogers*



**6462** 83(87)  
*Syngenta - Rogers*



**Bonus** 83(90)  
*Syngenta - Rogers*

\*Reported days to harvest (Days to harvest in trial)

**Sugary Enhanced Varieties Continued**



**Tamarack 85(87)**  
*Crookham Co.*



**CSUYP2-28 89(86)**  
*Crookham Co.*

## Supersweet Varieties



**ACX725Y** 75(84)  
*Abbott & Cobb, Inc.*



**Protégé** 77(90)  
*Syngenta - Rogers*



**ACX 1262** 78(90)  
*Abbott & Cobb, Inc.*



**ACX 1138** 79(86)  
*Abbott & Cobb, Inc.*

Supersweet Varieties Continued



**ACCentuate 80(86)**  
*Abbott & Cobb, Inc.*



**Magnum II 81(91)**  
*Syngenta-Rogers*



**SS Jubilee Plus 83(91)**  
*Syngenta - Rogers*



**Overland 84(94)**  
*Syngenta - Rogers*

## Appendix B: Weather Summary for the 2006 Growing Season

Date	Max Temp (°F)	Min Temp (°F)	Rainfall (inches)	Max Soil Temp (°F)	Min Soil Temp (°F)
25-Apr-06	75.22	46.92	0.00	74.05	53.76
26-Apr-06	60.03	45.05	0.00	71.73	54.19
27-Apr-06	69.91	41.36	0.00	75.43	51.35
28-Apr-06	63.37	40.63	0.00	73.04	54.34
29-Apr-06	59.77	37.04	0.00	72.27	49.51
30-Apr-06	63.63	35.31	0.00	70.41	48.33
1-May-06	62.26	38.03	0.00	67.12	49.44
2-May-06	74.59	37.41	0.00	74.59	48.92
3-May-06	73.87	48.67	0.00	74.44	56.01
4-May-06	80.04	47.05	0.00	79.45	56.44
5-May-06	80.38	57.20	0.00	77.34	62.15
6-May-06	79.66	60.17	0.00	81.64	65.59
7-May-06	62.26	50.29	0.00	77.09	60.03
8-May-06	59.63	46.29	0.19	64.81	55.89
9-May-06	69.91	42.09	0.00	71.71	50.36
10-May-06	77.56	45.57	0.00	79.79	54.39
11-May-06	72.37	52.25	0.49	72.77	59.56
12-May-06	72.99	52.23	0.04	75.04	59.07
13-May-06	72.88	54.73	0.00	75.56	59.43
14-May-06	59.50	52.23	0.05	64.89	59.52
15-May-06	73.22	53.73	0.10	72.55	58.21
16-May-06	67.93	52.84	0.20	69.75	58.82
17-May-06	73.98	48.52	0.00	73.98	55.13
18-May-06	76.35	52.86	0.08	76.84	58.80
19-May-06	66.20	53.22	0.08	68.85	60.08
20-May-06	73.74	52.63	0.00	73.18	57.88
21-May-06	74.25	43.10	0.00	75.54	54.79
22-May-06	68.68	45.70	0.00	74.82	56.71
23-May-06	66.83	40.50	0.00	74.21	55.22
24-May-06	73.87	44.83	0.00	78.06	56.93
25-May-06	74.61	54.86	0.00	70.23	61.18
26-May-06	84.70	63.84	0.00	76.84	65.77
27-May-06	83.37	66.43	0.00	80.89	68.20
28-May-06	82.00	61.86	0.00	86.09	67.62
29-May-06	89.62	59.65	0.00	87.06	69.26
30-May-06	92.21	66.69	0.00	88.43	71.80
31-May-06	86.43	63.59	0.00	86.58	72.43
1-Jun-06	90.28	67.68	0.00	86.61	73.04
2-Jun-06	84.85	67.03	3.96	84.15	69.76
3-Jun-06	73.99	61.72	0.02	74.50	68.67
4-Jun-06	77.41	56.17	0.00	77.47	64.51
5-Jun-06	74.19	59.88	0.10	75.56	66.31
6-Jun-06	70.65	57.52	0.00	71.19	65.80
7-Jun-06	77.07	59.16	0.00	71.31	63.59
8-Jun-06	80.51	59.76	0.00	77.50	65.26
9-Jun-06	80.38	61.61	0.07	79.38	67.15
10-Jun-06	71.51	57.42	0.00	73.47	64.63
11-Jun-06	72.14	50.50	0.00	73.54	60.89
12-Jun-06	67.93	55.71	0.18	69.87	64.56

<b>Date</b>	<b>Max Temp (°F)</b>	<b>Min Temp (°F)</b>	<b>Rainfall (inches)</b>	<b>Max Soil Temp (°F)</b>	<b>Min Soil Temp (°F)</b>
<b>13-Jun-06</b>	80.02	54.21	0.00	78.17	61.90
<b>14-Jun-06</b>	67.05	61.12	0.29	70.29	66.02
<b>15-Jun-06</b>	80.89	60.26	0.00	76.41	64.24
<b>16-Jun-06</b>	84.22	53.83	0.00	79.07	63.00
<b>17-Jun-06</b>	84.72	57.43	0.00	80.28	65.93
<b>18-Jun-06</b>	88.18	64.72	0.00	82.44	68.49
<b>19-Jun-06</b>	86.22	68.52	0.28	82.62	72.21
<b>20-Jun-06</b>	85.23	68.41	0.29	83.34	72.27
<b>21-Jun-06</b>	87.67	64.94	0.00	84.13	71.13
<b>22-Jun-06</b>	89.65	67.55	0.00	82.49	72.32
<b>23-Jun-06</b>	80.38	68.67	0.58	78.78	73.58
<b>24-Jun-06</b>	83.01	69.53	0.02	79.16	72.50
<b>25-Jun-06</b>	82.40	68.41	5.26	77.14	69.49
<b>26-Jun-06</b>	82.53	71.76	0.07	80.01	73.17
<b>27-Jun-06</b>	81.55	73.26	1.20	79.48	74.52
<b>28-Jun-06</b>	85.23	73.36	1.06	83.52	73.76
<b>29-Jun-06</b>	86.59	70.27	0.00	85.69	75.06
<b>30-Jun-06</b>	81.63	64.20	0.00	82.74	73.22
<b>1-Jul-06</b>	85.08	62.98	0.00	83.98	71.26
<b>2-Jul-06</b>	90.37	66.81	0.00	85.50	72.30
<b>3-Jul-06</b>	89.78	69.26	0.52	88.68	75.16
<b>4-Jul-06</b>	91.27	70.75	0.46	88.84	76.69
<b>5-Jul-06</b>	85.71	71.24	0.66	86.68	75.51
<b>6-Jul-06</b>	74.86	64.71	0.37	77.65	72.66
<b>7-Jul-06</b>	78.53	59.27	0.00	82.80	67.84
<b>8-Jul-06</b>	77.92	61.00	0.00	81.43	69.55
<b>9-Jul-06</b>	81.39	59.27	0.00	83.32	68.07
<b>10-Jul-06</b>	86.09	64.20	0.00	85.86	69.75
<b>11-Jul-06</b>	89.04	72.36	0.00	90.57	73.96
<b>12-Jul-06</b>	89.29	73.72	0.02	91.04	76.24
<b>13-Jul-06</b>	86.09	74.44	0.00	84.94	77.32
<b>14-Jul-06</b>	83.48	72.73	0.25	87.13	76.51
<b>15-Jul-06</b>	85.48	71.11	0.06	84.81	76.30
<b>16-Jul-06</b>	90.16	72.01	0.00	90.28	75.27
<b>17-Jul-06</b>	96.42	69.78	0.00	97.99	75.38
<b>18-Jul-06</b>	96.67	72.72	0.01	100.47	78.37
<b>19-Jul-06</b>	86.81	69.01	0.00	97.02	77.79
<b>20-Jul-06</b>	88.54	72.72	0.00	92.93	78.91
<b>21-Jul-06</b>	89.29	74.21	0.00	94.82	79.07
<b>22-Jul-06</b>	83.48	72.59	1.37	84.63	76.26
<b>23-Jul-06</b>	81.01	68.16	0.32	81.93	74.79
<b>24-Jul-06</b>	86.59	63.09	0.00	88.16	70.95
<b>25-Jul-06</b>	83.48	66.81	0.00	85.24	72.10
<b>26-Jul-06</b>	86.79	69.89	0.00	92.28	74.89
<b>27-Jul-06</b>	89.65	71.24	0.00	92.17	75.97
<b>28-Jul-06</b>	91.02	74.71	0.16	94.21	78.40