

se and sh₂ Sweet Corn Germplasm Evaluation Results 2000

Information on the Effects of
Genotype and Growing Location on
se- and sh₂-type Sweet Corn
Crop Yield, Ear, and Kernel Traits in Ohio in 2000

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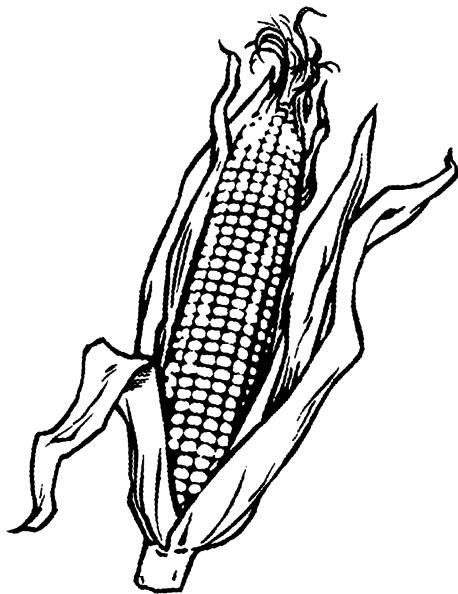
Wooster, OH 44691

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The Grower's Section

A complete description of this study and our findings begins on page 1. The "Grower's Section" is offered for quick reference.

What Did We Do?

We grew twenty-six varieties of yellow and two varieties of white se and sh₂ sweet corn at OARDC Research Branches in Celeryville (Huron County, muck soil), Fremont (Sandusky County, loam soil), and Wooster (Wayne County, silt loam soil). All locations were planted within four days of each other (May 11-15, 2000). Replicated field plots were used (this was not an un-replicated strip trial). Plots, plants, ears, and kernels were examined regularly throughout the season and post-harvest evaluations of quality are underway in the lab.

Why Did We Study only Yellow Corn?

Ohio farmers grow many different types and colors of sweet corn. Yellow, white, and bicolor and se-, sh₂-, and other endosperm types are grown in Ohio. Resources available to complete this project allow us to compare varieties which differ in endosperm type or kernel color but not both traits. At this time, we believe evaluating se- and sh₂- type varieties is most important to the industry.

Why Did We Do this Project?

Stand establishment (germination, emergence), and crop vigor, pest, disease, and stress resistance/tolerance, yield, and quality – these and other variety traits influence a grower's return from sweet corn production. To be successful, Ohio sweet corn growers must have available varieties adapted to the state's varied production conditions and markets. Because sweet corn varieties often differ in traits which affect grower return, scientifically measuring and documenting the performance of varieties under varied, local conditions is important. Equipped with reliable information from unbiased testing programs, growers can be confident that the varieties they choose will be adapted to their needs. This project was undertaken to assist Ohio sweet corn growers in identifying varieties with desirable traits.

What did We Find?

1. **Emergence.** Individual varieties differed in percent emergence (on average, Welcome TSW had the highest value among se varieties and XP8414657 the highest among sh₂ varieties). Percent emergence differed by as much as 35% among yellow se varieties and 27% among sh₂ varieties. But, on average, percent emergence was similar (about 77%) in the se and sh₂ groups, suggesting that endosperm type alone did not affect stand establishment. See Table 3 for more information.

2. **Marketable Yield.** Marketable yield also differed among varieties (on average, Tuxedo produced the greatest number of marketable ears among yellow se varieties and ACX 725 and XP8414657 the greatest among sh₂ varieties). Marketable yield on a weight basis differed by

as much as 36% among yellow se varieties and 19% among sh₂ varieties. But, on average, marketable yield was similar (about 16 ears from every 20 plants) in the se and sh₂ groups, suggesting that endosperm type alone did not affect marketable yield. See Table 6 for more information.

3. Disease Score. Rust was the most commonly-occurring disease, with Stewart's Wilt and common smut less common. In general, disease was less prevalent in the sh₂ group. Only one se-type variety, Kandy Plus, exhibited no visible disease symptoms at the Fremont and Wooster locations. The same was also true of two sh₂-type varieties, GSS-0966 VP (Attribute) and GSS 5786. Se-type varieties Incredible and Tuxedo showed a small number of disease lesions. The same was also true of six sh₂ varieties. See Table 10 for more information.

4. Overall Performance. Based on factors that can be measured objectively and are important in sweet corn variety selection, the following varieties were rated highly:

se-type: Tuxedo, XP8414247, Summer Flavor #73Y

sh₂-type: XP8414657, GSS-5786, HMX 6383S

Percent emergence, marketable yield, and disease scores were used to develop the ratings above (see Table 11 for more information). Obviously, sweet corn varieties should be chosen based on a number of criteria. In addition to the factors used to rank varieties in this study, endosperm type, maturity, crop appearance (e.g., ear size and quality), and other factors are important.

For more information on this bulletin or to receive digital images of representative ears of each entry and copies of this or similar publications, please contact:

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Project Details

This study resulted from the cooperation of private breeders, the Ohio Agricultural Research and Development Center, OSU Extension, the Dept. of Horticulture and Crop Science, and Ohio sweet corn and vegetable industries. Results from this study may be used by growers and others to select varieties adapted to Ohio growing conditions. Breeders may look to the data to estimate the narrow or broad adaptation of individual varieties or draw other inferences.

Materials and Methods

See Table 1 for a list of the varieties and experimental lines included in this study.

Plot Establishment. Twenty-eight se- and sh₂-type sweet corn varieties or experimental lines were planted at three locations in northern Ohio in 2000. Plots were established at the OARDC in Wooster (Wayne County, silt loam soil) and Muck Crops Research Branch in Celeryville (Huron County, organic/"muck" soil) on May 11 and Vegetable Crops Research Branch in Fremont (Sandusky County, loam soil) on May 15. A randomized complete block design with four replications was employed. Organic soils predominate at Celeryville while loams and silty loams predominate at Fremont and Wooster, respectively. Plots were seeded with a modified John Deere planter and contained four 25-ft rows on 30-in centers. The planter delivered 2.4 seed/ft/row. Ends of plots were separated by two feet at planting. Endosperm type (se, sh₂) experiments were separated by a minimum of 250 ft at each location.

Plots were shortened by hand after seedling establishment to 18 ft in Fremont and 20 ft in Celeryville and Wooster. All plots were also thinned by hand to contain 1.1 ± 0.17 plants/foot of row at the same time.

Plot Maintenance. Standard soil, nutrient, and pest management practices were employed. Ample rainfall was received and plots were not irrigated. In fact, flooding (followed by high weed pressure) due to significant rainfall events prior to anthesis compromised the quality the plots in Celeryville. Therefore, data from this site are not included in many analyses.

Measurement of Plant and Ear Traits. Readiness for harvest was assessed by counting days from 50% anthesis (target = 22 for se-type varieties and 20 for sh₂-type varieties) and visual examination of ears in each plot. Height to the top of the tassel and collar of the ear were measured on three mature plants in the center two rows per plot. Traits were then measured on ears from the ten center plants in the center two rows of each plot. The following data were collected for each plot at harvest: total weight of all ears from twenty plants, total number and weight of marketable ears. The following data were collected on five *individual* marketable ears per plot: ear length, ear diameter, number of rows of kernels per ear, and shank length. Non-marketable ears had incomplete tip fill or displayed evidence of disease, insect, or animal damage.

Sweetness. Estimates of kernel sweetness were made on four mature marketable ears

collected at harvest from each plot. A portion of two ears was frozen immediately after harvest in liquid nitrogen. Additional portions from the other two ears were similarly prepared after they had been stored for 48 hours at room temperature. The sweetness of these samples was estimated using Brix (sucrose level) readings. These data are shown in Table 12.

Statistical Analyses. Data from se and sh₂ experiments were analyzed separately. Analysis of variance was completed on main effects and interactions -- effects were considered significant if $p \leq 0.10$. Means were separated using Fisher's Protected LSD (site effect) and Duncan's Multiple Range (variety effect) tests ($\alpha = 0.10$).

Results

Site and Variety Effects. The site by variety (SxV) interaction was significant for 8 traits in the se experiment and 5 of 8 traits in the sh₂ experiment (Table 2). Therefore, additional analyses were undertaken to determine site-within-variety and variety-within-site effects.

Stand Establishment and Maturity. Percent emergence was highest for both endosperm types at Wooster (Table 3). Overall, percent emergence was similar in the se and sh₂ experiments (about 77%). Percent emergence among yellow-kernel entries at the Fremont and Wooster locations ranged from 60% to 97% in the se group and from 60% to 96% in the sh₂ group. Days to harvest was 74-92 days in the se group and 79-95 days in the sh₂ group (Table 4). Days to harvest tended to be less in Fremont than Wooster for both endosperm types (Table 4).

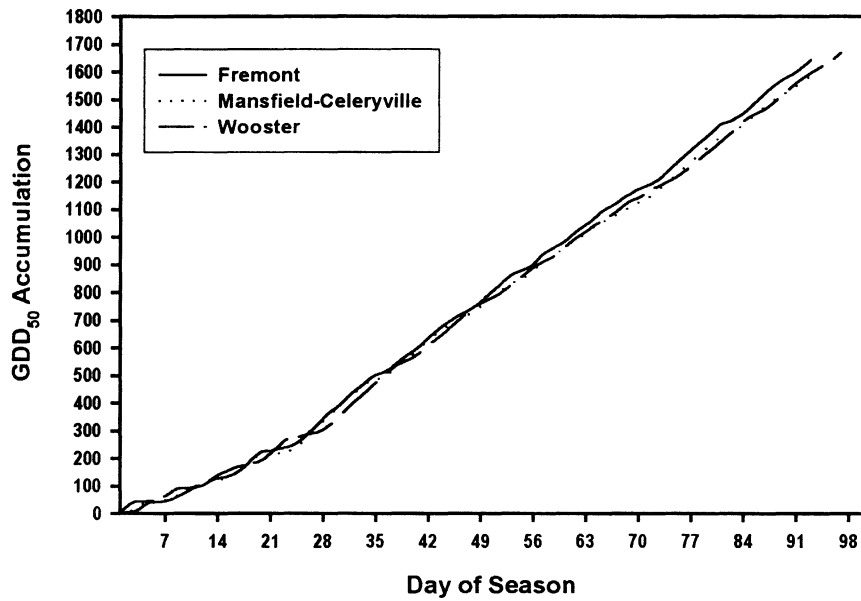
Marketable Yield. Marketable yield was not measured in Celeryville. Percent marketable yield by weight in the se group averaged approximately 80% in Fremont and Wooster (Table 5). Percent marketable yield by weight in the sh₂ group averaged 90% in Fremont and 83% in Wooster. On average, the number of marketable ears taken from 20 plants per plot was greater in Fremont than Wooster and slightly greater in the sh₂ group than se group (Table 6).

Ear Traits. Overall total ear length, including the shank, was approximately 32 cm (12.6 in) in the se group and 30 cm (11.8 in) in the sh₂ group (Table 8). Total ear length at Fremont and Wooster ranged from 27.5 cm (10.8 in) to 35.2 cm (13.8 in) and 27.6 cm (10.8 in) to 36 cm (14.2 in) in the se and sh₂ group, respectively.

Overall Performance. A sum-based rank of entries across all locations is provided in Table 11. The rank of each entry, not including white entries (#14 in the se and sh₂ groups), for percent emergence, marketable yield, and disease score across all locations was identified from data in Tables 3, 5, 6, and 10. For example, Welcome TSW had the highest percent emergence among yellow se entries across all locations and was given a rank of "1." Sweet Cheeks had the lowest percent emergence among yellow se entries across all locations and was given a rank of "10." Ties are permitted in the rankings. A lower aggregate score (rank) suggests favorable emergence, disease tolerance/resistance, and yield across the locations employed in these experiments but it is not necessarily a predictor of performance at other

locations or under different production conditions. In 2000, aggregate scores ranged from 9-37 among yellow se entries and from 7-30 among sh₂ entries. Assuming no ties, the lowest possible score is four while the highest possible score is fifty-two.

Growing Degree Day - base 50F (GDD₅₀) Accumulation in 2000



Cumulative Rainfall (in.) in 2000

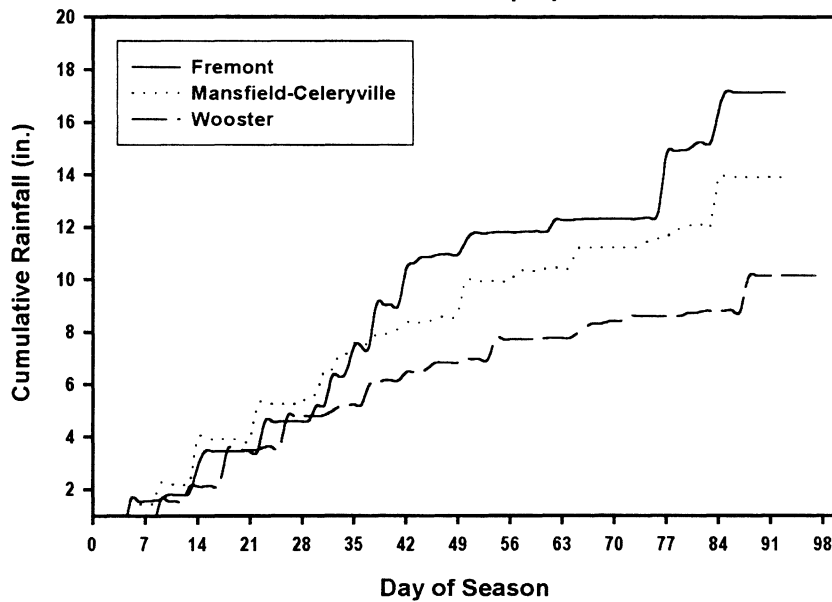


Table 1. List of se- and sh₂-type sweet corn entries tested at three locations in Ohio in 2000.

<u>Type</u>	<u>Entry #</u>	<u>Name</u>	<u>Kernel Color</u>	<u>Company</u>
se	1	EX8413067	yellow	Asgrow
	2	Honey Select (GH-4881)	yellow	Novartis / Rogers
	3	Incredible	yellow	Crookham
	4	Kandy Plus	yellow	Novartis / Rogers
	5	Spring Treat	yellow	Rispen's
	6	Summer Flavor # 64Y	yellow	Abbott & Cobb
	7	Summer Flavor # 73Y	yellow	Abbott & Cobb
	8	Sweet Cheeks	yellow	Harris Moran
	9	Tablemaster	yellow	Mesa Maize
	10	Tuxedo	yellow	Mesa Maize
	11	Welcome TSW (30029)	yellow	Mesa Maize
	12	XP8414247	yellow	Asgrow
	13	XP8414907	yellow	Asgrow
	14	HMX5349	white	Harris Moran
sh ₂	1	ACX 728	yellow	Abbott & Cobb
	2	710A	yellow	Crookham
	3	ACX 725	yellow	Abbott & Cobb
	4	GSS-0966 VP (Attribute)	yellow	Novartis / Rogers
	5	GSS-3587 VP	yellow	Novartis / Rogers
	6	GSS-5786	yellow	Novartis / Rogers
	7	HMX 6383S	yellow	Harris Moran
	8	HMX 8392SREC	yellow	Harris Moran
	9	Morning Star	yellow	Harris Moran
	10	Summer Sweet # 7100R	yellow	Abbott & Cobb
	11	XP8414737	yellow	Asgrow
	12	XP8414657	yellow	Asgrow
	13	XP8415337	yellow	Asgrow
	14	Ice Queen	white	Harris Moran

Table 2. Analysis of variance results for experiments studying the impact of planting site and variety on sweet corn ear traits and yield in Ohio in 2000.

	----- length (cm.) -----			Height	Ear diam. (cm.)	No. rows kernels	--- Marketable Yield ---	
	Ear	Shank	Total Ear	(cm) to Ear			No. ears per 20 plants	percent by weight
----- Pr > F -----								
se Experiment								
Source								
Site (S)	< 0.0001	0.4441	0.0140	0.0687	0.8736	0.0003	0.0068	0.9330
Variety (V)	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
S x V	0.0087	0.0459	0.0097	< 0.0001	0.0136	0.0005	0.0093	0.0004
sh₂ Experiment								
Source								
Site (S)	0.3909	0.0194	0.0147	0.2488	0.0722	0.0223	< 0.0001	< 0.0001
Variety (V)	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	0.0006
S x V	0.1106	0.0076	0.0130	0.9812	< 0.0001	0.2546	0.0290	0.0077

Table 3. Percent emergence of se- and sh₂- type sweet corn entries planted at three sites in Ohio in 2000.

<u>se Entry</u>	<u>Celeryville</u>	<u>Fremont</u>	<u>Wooster</u>	<u>Entry Average</u>	<u>Row LSD_(0.10)</u>	
1	EX8413067	66	71	60	65.6	10.5
2	Honey Select (GH-4881)	70	79	85	77.7	8.3
3	Incredible	39	86	83	69.4	13.1
4	Kandy Plus	72	81	81	77.8	9.0
5	Spring Treat	74	75	78	75.6	5.4
6	Summer Flavor # 64Y	60	73	76	69.4	14.3
7	Summer Flavor # 73Y	67	88	90	81.3	12.6
8	Sweet Cheeks	9	88	87	61.5	10.3
9	Tablemaster	78	68	83	76.4	11.6
10	Tuxedo	80	75	82	78.9	12.8
11	Welcome TSW (30029)	97	91	94	93.8	8.5
12	XP8414247	77	77	80	77.5	9.6
13	XP8414907	58	63	70	63.4	9.0
14	HMX5349 (white)	91	88	83	87.3	6.7
	site	66.9	78.6	80.7	se overall 75.4	
	Column DMRT_(0.10)	13.2	9.7	11.4		

<u>sh₂ Entry</u>	<u>Celeryville</u>	<u>Fremont</u>	<u>Wooster</u>	<u>Entry Average</u>	<u>Row LSD_(0.10)</u>	
1	ACX 728	68	81	81	76.5	8.4
2	710A	72	76	88	78.3	16.1
3	ACX 725	57	84	83	74.6	9.6
4	GSS-0966 VP (Attribute)	52	62	60	57.9	12.5
5	GSS-3587 VP	58	67	70	64.9	14.5
6	GSS-5786	66	84	89	79.6	17.5
7	HMX 6383S	72	80	94	81.9	12.5
8	HMX 8392SREC	68	85	83	78.8	15.6
9	Morning Star	56	80	85	73.5	15.8
10	Summer Sweet # 7100R	72	85	85	80.6	10.1
11	XP8414737	63	73	77	71.0	24.4
12	XP8414657	75	91	88	84.7	15.0
13	XP8415337	82	77	80	79.5	15.4
14	Ice Queen (white)	90	85	95	89.7	19.0
	site	67.7	79.2	82.7	sh₂ overall 76.5	
	Column DMRT_(0.10)	27.4	12.8	13.2		

Table 4. Number of days from planting to midpoint anthesis and harvest of se- and sh₂- type sweet corn entries planted at two sites in Ohio in 2000.

<u>se Entry</u>	<u>Fremont</u>		<u>Wooster</u>		<u>Entry Avg.</u>		
	<u>anthesis</u>	<u>harvest</u>	<u>anthesis</u>	<u>harvest</u>	<u>anthesis</u>	<u>harvest</u>	
1	EX8413067	57	79	60	82	58.6	80.5
2	Honey Select (GH-4881)	65	87	69	92	67.0	89.5
3	Incredible	65	87	70	92	67.3	89.5
4	Kandy Plus	67	91	72	92	69.0	91.5
5	Spring Treat	52	74	57	78	54.4	76.0
6	Summer Flavor # 64Y	57	77	59	82	58.1	79.5
7	Summer Flavor # 73Y	63	84	64	88	63.6	86.0
8	Sweet Cheeks	55	77	59	82	56.5	79.5
9	Tablemaster	62	84	67	88	64.4	86.0
10	Tuxedo	59	84	64	88	61.5	86.0
11	Welcome TSW (30029)	58	77	62	82	59.6	79.5
12	XP8414247	63	84	66	90	64.4	87.0
13	XP8414907	58	79	63	84	60.3	81.5
14	HMX5349 (white)	62	84	65	90	63.8	87.0
						se overall	
	site	60.0	82.0	64.0	86.4	62.0	84.2

<u>sh₂ Entry</u>	<u>Fremont</u>		<u>Wooster</u>		<u>Entry Avg.</u>		
	<u>anthesis</u>	<u>harvest</u>	<u>anthesis</u>	<u>harvest</u>	<u>anthesis</u>	<u>harvest</u>	
1	ACX 728	61	79	67	88	63.9	83.5
2	710A	63	84	69	92	65.9	88.0
3	ACX 725	59	79	65	82	61.9	80.5
4	GSS-0966 VP (Attribute)	66	84	71	88	68.5	86.0
5	GSS-3587 VP	63	84	69	88	65.6	86.0
6	GSS-5786	68	87	72	90	69.9	88.5
7	HMX 6383S	67	87	72	95	69.4	91.0
8	HMX 8392SREC	68	91	73	92	70.3	91.5
9	Morning Star	65	87	72	90	68.6	88.5
10	Summer Sweet # 7100R	63	79	67	84	64.5	81.5
11	XP8414737	67	87	72	92	69.1	89.5
12	XP8414657	64	84	70	88	66.5	86.0
13	XP8415337	66	87	73	95	69.6	91.0
14	Ice Queen (white)	61	84	68	88	64.6	86.0
						sh₂ overall	
	site	64.3	84.5	69.8	89.4	67.0	87.0

Note: Midpoint anthesis indicates when 50% of the plants reached anthesis.

Table 5. Percent marketable ears by weight of se- and sh₂- type sweet corn entries planted at two sites in Ohio in 2000.

<u>se Entry</u>		<u>Fremont</u>	<u>Wooster</u>	<u>Entry Average</u>	<u>Row LSD_(0.10)</u>
1	EX8413067	79	82	80.1	11.7
2	Honey Select (GH-4881)	79	74	76.8	10.1
3	Incredible	73	64	68.9	16.0
4	Kandy Plus	64	65	64.8	7.5
5	Spring Treat	84	80	82.0	11.2
6	Summer Flavor # 64Y	80	91	85.5	8.4
7	Summer Flavor # 73Y	87	89	87.7	12.6
8	Sweet Cheeks	61	92	76.6	13.0
9	Tablemaster	85	65	74.9	17.4
10	Tuxedo	95	88	91.3	8.3
11	Welcome TSW (30029)	90	84	86.8	12.5
12	XP8414247	89	86	87.5	10.7
13	XP8414907	78	81	79.4	16.2
14	HMX5349 (white)	83	87	84.9	11.7
		se overall			
site		80.4	80.6	80.5	
Column DMRT_(0.10)		12.1	13.5		

<u>sh₂ Entry</u>		<u>Fremont</u>	<u>Wooster</u>	<u>Entry Average</u>	<u>Row LSD_(0.10)</u>
1	ACX 728	92	84	88.2	9.6
2	710A	87	61	74.5	15.1
3	ACX 725	96	93	94.2	5.1
4	GSS-0966 VP (Attribute)	89	93	90.9	5.9
5	GSS-3587 VP	94	86	90.0	6.9
6	GSS-5786	92	88	90.0	7.1
7	HMX 6383S	87	82	84.5	13.5
8	HMX 8392SREC	78	86	81.9	15.6
9	Morning Star	91	79	84.7	10.4
10	Summer Sweet # 7100R	92	75	83.7	16.0
11	XP8414737	83	85	84.0	10.2
12	XP8414657	93	87	90.2	6.2
13	XP8415337	86	84	84.9	12.6
14	Ice Queen (white)	94	85	89.2	6.1
		sh₂ overall			
site		89.6	83.4	86.5	
Column DMRT_(0.10)		9.4	12.7		

Note: percent marketable ears by weight = (total ear weight/marketable ear weight)*100

Table 6. Number of marketable ears per 20 plants of se- and sh₂- type sweet corn entries planted at two sites in Ohio in 2000.

<u>se Entry</u>	<u>Fremont</u>	<u>Wooster</u>	<u>Entry Average</u>	<u>Row LSD_(0.10)</u>	
1	EX8413067	16	15	15.4	2.8
2	Honey Select (GH-4881)	15	13	13.5	1.8
3	Incredible	14	12	13.0	3.6
4	Kandy Plus	12	12	11.8	1.3
5	Spring Treat	15	16	15.4	2.6
6	Summer Flavor # 64Y	15	17	15.8	1.0
7	Summer Flavor # 73Y	17	16	16.5	2.6
8	Sweet Cheeks	11	14	12.3	2.9
9	Tablemaster	16	11	13.3	3.6
10	Tuxedo	19	17	18.0	2.3
11	Welcome TSW (30029)	18	14	15.9	1.3
12	XP8414247	17	16	16.8	3.1
13	XP8414907	15	14	14.0	3.3
14	HMX5349 (white)	16	16	15.9	2.5
	site	15.3	14.3	se overall 14.8	
	Column DMRT_(0.10)	2.6	2.8		

<u>sh₂ Entry</u>	<u>Fremont</u>	<u>Wooster</u>	<u>Entry Average</u>	<u>Row LSD_(0.10)</u>	
1	ACX 728	17	15	15.8	2.2
2	710A	16	11	13.6	2.4
3	ACX 725	19	18	18.3	1.7
4	GSS-0966 VP (Attribute)	16	18	17.1	2.0
5	GSS-3587 VP	17	15	16.0	1.3
6	GSS-5786	18	16	17.0	2.5
7	HMX 6383S	17	15	15.9	3.5
8	HMX 8392SREC	15	16	15.3	3.8
9	Morning Star	18	14	15.5	3.1
10	Summer Sweet # 7100R	17	13	14.8	2.6
11	XP8414737	15	16	15.6	2.3
12	XP8414657	19	17	17.9	1.6
13	XP8415337	16	15	15.6	3.4
14	Ice Queen (white)	18	15	16.6	1.7
	site	16.9	15.3	sh₂ overall 16.1	
	Column DMRT_(0.10)	2.3	2.9		

Table 7. Ear diameter (cm) and number of rows of kernels per ear of se- and sh₂- type sweet corn entries planted at two sites in Ohio in 2000.

se Entry	Fremont		Wooster		Entry	Row	Entry	Row	
	diam.	# rows	diam.	# rows	Avg. diam.	LSD _(0.10) diam.	Avg. # rows	LSD _(0.10) # rows	
1	EX8413067	3.9	12	3.7	11	3.8	0.3	11.7	0.4
2	Honey Select (GH-4881)	4.1	17	4.2	16	4.1	0.2	16.5	1.0
3	Incredible	4.3	18	4.5	18	4.4	0.2	17.9	1.5
4	Kandy Plus	5.0	19	4.7	17	4.8	0.2	17.9	1.6
5	Spring Treat	4.0	13	4.1	13	4.1	0.2	13.1	0.4
6	Summer Flavor # 64Y	3.8	12	4.0	13	3.9	0.2	12.5	0.5
7	Summer Flavor # 73Y	4.6	18	4.4	17	4.5	0.3	17.7	1.1
8	Sweet Cheeks	3.8	13	4.0	14	3.9	0.2	13.4	0.8
9	Tablemaster	4.4	18	4.3	18	4.3	0.4	18.2	0.4
10	Tuxedo	4.3	15	4.0	14	4.1	0.2	14.3	1.1
11	Welcome TSW (30029)	4.3	16	4.1	14	4.2	0.2	15.1	0.6
12	XP8414247	4.1	18	4.3	19	4.2	0.3	18.5	0.4
13	XP8414907	3.9	14	4.0	13	4.0	0.3	13.4	0.6
14	HMX5349 (white)	4.1	15	4.1	15	4.1	0.1	14.9	1.2
						se overall		se overall	
	site	4.2	15.6	4.2	15.1	4.2		15.4	
	Column DMRT _(0.10)	0.3	0.8	0.2	1.1				

sh ₂ Entry	Fremont		Wooster		Entry	Row	Entry	Row	
	diam.	# rows	diam.	# rows	Avg. diam.	LSD _(0.10) diam.	Avg. # rows	LSD _(0.10) # rows	
1	ACX 728	4.2	17	4.4	15	4.3	0.3	15.9	1.2
2	710A	4.3	18	4.6	17	4.5	0.2	17.4	0.8
3	ACX 725	4.4	15	4.0	15	4.2	0.2	14.6	2.2
4	GSS-0966 VP (Attribute)	4.0	16	4.0	16	4.0	0.1	16.0	1.1
5	GSS-3587 VP	4.2	15	4.2	15	4.2	0.4	15.2	0.8
6	GSS-5786	4.0	15	4.1	15	4.0	0.1	15.4	0.9
7	HMX 6383S	4.3	16	4.7	16	4.5	0.2	16.1	0.6
8	HMX 8392SREC	4.6	17	4.3	17	4.5	0.3	16.8	0.6
9	Morning Star	4.0	17	4.0	16	4.0	0.1	16.5	0.6
10	Summer Sweet # 7100R	4.1	17	4.2	17	4.1	0.2	16.8	1.8
11	XP8414737	4.3	17	4.3	16	4.3	0.2	16.3	1.6
12	XP8414657	4.2	16	4.0	16	4.1	0.1	16.0	0.7
13	XP8415337	4.1	16	4.5	17	4.3	0.1	16.5	0.4
14	Ice Queen (white)	4.1	15	4.1	16	4.1	0.2	15.5	2.0
						sh₂ overall		sh₂ overall	
	site	4.2	16.3	4.2	15.9	4.2		16.1	
	Column DMRT _(0.10)	0.2	1.6	0.2	0.8				

Table 8. Ear length (cm) and total ear and shank length (cm) of se- and sh₂- type sweet corn entries planted at two sites in Ohio in 2000.

<u>se Entry</u>	Fremont		Wooster		Entry	Row	Entry	Row	
	<u>ear</u>	<u>+ shank</u>	<u>ear</u>	<u>+ shank</u>	Avg. <u>ear</u>	LSD _(0.10) <u>ear</u>	Avg. <u>+ shank</u>	LSD _(0.10) <u>+ shank</u>	
1	EX8413067	22	29	21	29	21.6	0.9	29.0	2.0
2	Honey Select (GH-4881)	21	35	20	33	20.7	0.7	33.8	2.7
3	Incredible	20	31	20	31	19.8	0.8	31.0	1.9
4	Kandy Plus	22	37	21	34	21.7	0.7	35.2	2.8
5	Spring Treat	20	40	18	30	18.9	2.0	34.8	3.4
6	Summer Flavor # 64Y	19	33	19	35	19.0	0.3	34.3	3.4
7	Summer Flavor # 73Y	20	28	19	28	19.4	0.5	28.3	2.4
8	Sweet Cheeks	19	27	19	31	18.9	1.0	29.2	5.1
9	Tablemaster	21	33	20	32	20.7	0.6	32.6	4.4
10	Tuxedo	21	33	21	32	21.3	1.0	32.7	3.4
11	Welcome TSW (30029)	19	28	18	27	18.4	0.7	27.5	3.4
12	XP8414247	19	32	18	28	18.4	0.5	30.2	2.7
13	XP8414907	22	33	21	34	21.5	0.8	33.6	2.0
14	HMX5349 (white)	21	32	18	28	19.5	0.5	29.7	2.5
						se overall		se overall	
	site	20.4	32.3	19.6	30.8	20.0		31.6	
	Column DMRT _(0.10)	0.7	2.4	1.1	4.0				

<u>sh₂ Entry</u>	Fremont		Wooster		Entry	Row	Entry	Row	
	<u>ear</u>	<u>+ shank</u>	<u>ear</u>	<u>+ shank</u>	Avg. <u>ear</u>	LSD _(0.10) <u>ear</u>	Avg. <u>+ shank</u>	LSD _(0.10) <u>+ shank</u>	
1	ACX 728	20	27	20	29	19.6	0.5	28.4	1.3
2	710A	22	36	21	36	21.4	0.6	36.0	2.5
3	ACX 725	19	29	18	31	18.4	0.7	30.0	1.2
4	GSS-0966 VP (Attribute)	18	32	18	32	18.2	0.4	31.9	2.4
5	GSS-3587 VP	19	27	19	28	18.6	0.6	27.6	2.8
6	GSS-5786	18	30	18	28	17.8	0.4	28.9	3.5
7	HMX 6383S	19	32	20	31	19.5	0.4	31.4	2.3
8	HMX 8392SREC	19	32	19	27	18.9	1.1	29.8	4.2
9	Morning Star	18	29	18	28	18.2	0.4	28.5	1.5
10	Summer Sweet # 7100R	19	29	19	29	18.8	0.5	28.8	3.5
11	XP8414737	18	32	18	28	18.0	0.4	30.1	2.2
12	XP8414657	19	32	19	30	19.3	0.5	30.9	2.6
13	XP8415337	18	31	19	29	18.4	0.4	29.6	1.4
14	Ice Queen (white)	20	33	20	31	20.0	0.9	32.1	2.4
						sh₂ overall		sh₂ overall	
	site	19.0	30.7	18.9	29.8	18.9		30.3	
	Column DMRT _(0.10)	0.5	2.2	0.7	3.0				

Note: 2.54 cm = 1 inch

Table 9. Height (cm) to primary ear collar and top of plant tassel of se- and sh₂- type sweet corn entries planted at two sites in Ohio in 2000.

<u>se Entry</u>	Fremont		Wooster		Entry	Row	Entry	Row	
	<u>ear</u>	<u>tassel</u>	<u>ear</u>	<u>tassel</u>	Avg. <u>ear</u>	LSD _(0.10) <u>ear</u>	Avg. <u>tassel</u>	LSD _(0.10) <u>tassel</u>	
1	EX8413067	39	153	52	177	45.7	7.8	164.9	15.2
2	Honey Select (GH-4881)	68	208	72	204	70.1	3.6	205.6	4.0
3	Incredible	79	214	69	202	73.9	5.0	208.1	4.3
4	Kandy Plus	68	206	60	188	64.0	7.3	196.7	10.1
5	Spring Treat	47	169	45	162	46.0	2.7	165.5	8.6
6	Summer Flavor # 64Y	42	151	46	169	44.4	3.7	159.9	11.1
7	Summer Flavor # 73Y	59	190	53	181	55.6	6.6	185.7	5.3
8	Sweet Cheeks	47	183	59	199	53.4	13.3	191.3	9.6
9	Tablemaster	92	225	71	216	81.4	7.4	220.2	2.6
10	Tuxedo	63	214	59	193	60.8	3.0	203.5	11.1
11	Welcome TSW (30029)	57	180	67	191	61.9	8.9	185.5	9.1
12	XP8414247	85	215	73	207	79.3	5.1	210.8	5.7
13	XP8414907	68	203	68	208	68.0	6.4	205.5	6.4
14	HMX5349 (white)	86	219	83	210	84.0	4.0	214.7	4.3
						se overall		se overall	
	site	64.3	195.0	62.6	193.3	63.5		194.1	
	Column DMRT_(0.10)	3.2	5.4	9.2	11.2				

<u>sh₂ Entry</u>	Fremont		Wooster		Entry	Row	Entry	Row	
	<u>ear</u>	<u>tassel</u>	<u>ear</u>	<u>tassel</u>	Avg. <u>ear</u>	LSD _(0.10) <u>ear</u>	Avg. <u>tassel</u>	LSD _(0.10) <u>tassel</u>	
1	ACX 728	63	185	62	185	62.7	10.6	184.8	16.0
2	710A	77	211	76	204	76.5	9.7	207.8	19.8
3	ACX 725	59	171	61	182	59.8	13.4	176.3	14.4
4	GSS-0966 VP (Attribute)	82	215	80	212	80.9	4.5	213.3	11.1
5	GSS-3587 VP	63	197	65	197	64.0	15.7	197.2	20.0
6	GSS-5786	71	203	72	200	71.3	9.2	201.7	17.3
7	HMX 6383S	75	209	74	195	74.5	10.8	202.2	18.7
8	HMX 8392SREC	75	201	71	188	73.1	14.0	194.3	16.1
9	Morning Star	81	199	72	180	76.1	10.7	189.3	12.5
10	Summer Sweet # 7100R	61	188	64	186	62.3	8.1	186.6	17.2
11	XP8414737	75	219	71	202	73.0	10.5	210.7	12.7
12	XP8414657	75	204	74	203	74.6	14.9	203.4	17.9
13	XP8415337	76	207	70	191	73.0	10.4	198.8	13.3
14	Ice Queen (white)	69	194	64	189	66.9	11.2	191.9	6.3
						sh₂ overall		sh₂ overall	
	site	71.5	200.1	69.7	193.9	70.6		197.0	
	Column DMRT_(0.10)	14.5	20.7	8.2	10.2				

Note: 2.54 cm = 1 inch

Table 10. Average disease score (0-3)¹ of se- and sh₂- type sweet corn entries planted at three sites in Ohio in 2000.

<u>se Entry</u>		<u>Celeryville</u>	<u>Fremont</u>	<u>Wooster</u>	<u>Entry Average</u>	<u>Row LSD(0.10)</u>
1	EX8413067	1.50 R	1.13 R	0.88 R	1.17	0.79
2	Honey Select (GH-4881)	2.13 R	1.13 R	1.00 R	1.42	0.67
3	Incredible	1.75 R	0.88 S, R	0.25 S, R	0.96	0.56
4	Kandy Plus	0.00	0.00	0.00	0.00	0.00
5	Spring Treat	2.50 R, SW	1.88 R	1.50 R	1.96	0.64
6	Summer Flavor # 64Y	2.00 R, SW	1.75 R	1.50 R	1.75	0.78
7	Summer Flavor # 73Y	1.88 R	1.13 R	0.75 R	1.25	0.70
8	Sweet Cheeks	3.00 R	3.00 R	2.00 R, SW	2.67	0.00
9	Tablemaster	2.00 R	1.00 R	1.00 R	1.33	0.61
10	Tuxedo	2.00 R	0.88 R	0.25 S, R	1.04	0.74
11	Welcome TSW (30029)	3.00 R, SW	1.88 R	1.00 R, SW	1.96	0.36
12	XP8414247	1.75 R	1.00 R, lodging	0.00	0.92	0.48
13	XP8414907	2.50 R	2.38 R	1.25 R, SW	2.04	0.91
14	HMX5349 (white)	2.75 R	2.38 R	1.25 R	2.13	0.88
					se overall	
site		2.05	1.46	0.90	1.47	
Column DMRT_(0.10)		0.90	0.56	0.62		

<u>sh₂ Entry</u>		<u>Celeryville</u>	<u>Fremont</u>	<u>Wooster</u>	<u>Entry Average</u>	<u>Row LSD(0.10)</u>
1	ACX 728	2.00 R	2.00 R	0.38 R	1.46	0.21
2	710A	1.83 R	1.63 R	0.25 R	1.24	0.71
3	ACX 725	2.33 R	1.50 R	1.00 R	1.61	0.53
4	GSS-0966 VP (Attribute)	0.00	0.00	0.00	0.00	0.00
5	GSS-3587 VP	0.17 R	0.25 R	0.00	0.14	0.47
6	GSS-5786	0.00	0.00	0.00	0.00	0.00
7	HMX 6383S	0.33 R	0.13 R	0.00	0.15	0.29
8	HMX 8392SREC	0.17 R	0.25 R	0.00	0.14	0.47
9	Morning Star	0.33 R	0.25 R	0.00	0.19	0.32
10	Summer Sweet # 7100R	0.33 R, SW	0.50 R, SW	0.13 R	0.32	0.45
11	XP8414737	0.00	0.50 R, SW	0.00	0.17	0.35
12	XP8414657	0.00	0.13 R	0.00	0.04	0.21
13	XP8415337	1.00 R, S	1.00 R	0.25 R	0.75	0.42
14	Ice Queen (white)	0.33 R	0.50 R	0.00	0.28	0.20
					sh₂ overall	
site		0.63	0.62	0.14	0.46	
Column DMRT_(0.10)		0.52	0.48	0.21		

¹ Disease score: 0 = no disease present, 1 = disease present few lesions, 2 = moderate infestation, 3 = severe with infection present on flag leaves. Rated one week before harvest. R = rust, S = Smut, SW =

Table 11. Estimate of overall performance of yellow se- and sh₂-type sweet corn entries planted at three sites in Ohio in 2000 based on percent emergence, marketable yield, and disease score. The lower the value, the better the score. See page 2 for a full explanation of the ranking system.

Type & Entry	Percent Emergence	--- Marketable Yield ¹ ---		Disease Score	Sum of Preceding Columns	Rank within Group
		% by Weight	# of marketable ears / 20 plants			
se						
1 - EX8413067	8	6	4	5	23	5
2 - Honey Select	4	8	5	8	25	6
3 - Incredible	7	10	6	3	26	7
4 - Kandy Plus	4	11	7	1	23	5
5 - Spring Treat	6	5	4	10	25	6
6 - Summer Flavor #64Y	7	4	3	9	23	5
7 - Summer Flavor #73Y	2	2	2	6	12	3
8 - Sweet Cheeks	10	8	7	12	37	10
9 - Tablemaster	5	9	6	7	27	8
10 - Tuxedo	3	1	1	4	9	1
11 - Welcome TSW	1	3	3	10	17	4
12 - XP8414247	4	2	2	2	10	2
13 - XP8414907	9	7	5	11	32	9
sh₂						
1 - ACX 728	7	4	3	9	23	7
2 - ACX 710A	6	8	5	11	30	9
3 - ACX 725	8	1	1	10	20	6
4 - GSS-0966 VP (Attribute)	12	2	2	1	17	4
5 - GSS-3587 VP	11	3	3	3	20	6
6 - GSS-5786	4	3	2	1	10	2
7 - HMX 6383S	2	5	3	4	14	3
8 - HMX 8392SREC	5	7	4	3	19	5
9 - Morning Star	9	5	3	6	23	7
10 - Summer Sweet #7100R	3	6	4	7	20	6
11 - XP8414737	10	6	3	5	24	8
12 - XP8414657	1	3	1	2	7	1
13 - XP8415337	4	5	3	8	20	6

¹ Marketable yield values based on data from two sites (Fremont, Wooster); percent emergence and disease score values based on data from all three sites

Table 12. Influence of endosperm type, genotype, and time of sampling on sweet corn kernel sap sucrose level (Brix, %) in crops planted at Fremont and Wooster, Ohio on May 11 and 15, 2000. Four mature ears were removed from each plot (20 ears/entry/site). Brix readings were taken on sap expressed from ten ears immersed in liquid nitrogen at harvest and on sap expressed from ten ears held under room conditions (approx. 70°F) for 48 hours after harvest. A Leica tabletop refractometer was used.

Genotype	Sample Period	
	Harvest	48-hour
Average Brix (%)		
se Entry		
1 EX8413067	21.4 ± 1.3	20.1 ± 2.0
2 Honey Select (GH-4881)	22.2 ± 1.4	18.7 ± 1.5
3 Incredible	21.4 ± 2.1	20.8 ± 2.2
4 Kandy Plus	21.9 ± 1.2	18.5 ± 1.0
5 Spring Treat	22.8 ± 2.0	22.4 ± 1.4
6 Summer Flavor # 64Y	22.6 ± 1.6	19.2 ± 1.1
7 Summer Flavor # 73Y	21.8 ± 2.1	19.6 ± 1.4
8 Sweet Cheeks	23.4 ± 1.9	20.2 ± 1.6
9 Tablemaster	21.3 ± 1.6	19.2 ± 1.4
10 Tuxedo	21.9 ± 2.1	19.4 ± 1.9
11 Welcome TSW (30029)	21.1 ± 1.8	18.7 ± 2.6
12 XP8414247	21.5 ± 1.1	18.7 ± 2.3
13 XP8414907	19.8 ± 1.3	18.2 ± 1.6
14 HMX5349 (white)	19.0 ± 1.2	18.2 ± 1.9
se average	21.6 ± 1.1	19.4 ± 1.2
sh₂ Entry		
1 ACX 728	19.1 ± 1.9	18.5 ± 2.3
2 710A	17.2 ± 1.8	15.4 ± 2.4
3 ACX 725	18.1 ± 2.0	15.7 ± 2.4
4 GSS-0966 VP (Attribute)	17.7 ± 1.4	15.4 ± 2.5
5 GSS-3587 VP	18.4 ± 1.1	15.8 ± 1.3
6 GSS-5786	18.5 ± 1.2	15.4 ± 1.7
7 HMX 6383S	18.2 ± 1.3	15.8 ± 1.6
8 HMX 8392SREC	20.3 ± 1.5	17.3 ± 1.0
9 Morning Star	16.6 ± 1.5	14.6 ± 1.6
10 Summer Sweet # 7100R	16.0 ± 2.1	13.9 ± 1.8
11 XP8414737	19.0 ± 1.5	15.5 ± 1.7
12 XP8414657	17.9 ± 1.3	15.5 ± 1.2
13 XP8415337	19.5 ± 2.1	16.0 ± 2.0
14 Ice Queen (White)	17.4 ± 1.7	14.9 ± 1.4
sh₂ average	18.1 ± 1.1	15.7 ± 1.1

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