

## Sweet Corn Cultivar Evaluation for Northern Indiana, 2000

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Thirty-nine sugar-enhanced (se) sweet corn cultivars were evaluated at the Pinney-Purdue Ag Center, Wanatah, IN. Production practices and experimental design are described at the end of this report.

Results are reported in Table 1. Emergence of all but ten varieties was greater than 80%. One line, PX 6803 had exceptionally poor emergence, at 26%. Marketable yield ranged from 789 dozen to 1728 dozen ears per acre, and 35 to 188 cwt. per acre. The cultivars with lower yield seemed to have more ears that were unmarketable due to small size or poor pollination. Ear size (weight per ear, ear length, and ear diameter) also varied among cultivars. Later-maturing cultivars tended to have larger ears. Cultivars with ears larger than typical for their maturity date included: EX 8410307 (heavier), Bon Appetit (heavier and wider), and Tuxedo (longer). Cultivars with ears smaller than typical for their maturity date included: EX 8414787 (narrower), Early Ambrosia (shorter), EX 8410317 (narrower), EX 8414777 (lighter), and Sweet Scarlet (narrower). Husk cover was good to excellent for most cultivars. Exceptions were PX 6803, EX 8414777, Seneca Dancer, and Summer Flavor with fair husk cover, and Early Ambrosia and Incredible with fair to poor husk cover. Tip fill varied from poor to excellent. About a third of the cultivars had good to excellent tip fill, including Bon Appetit, EX 8410297, EX 8414837, EX 8410307, EX 8410317, EX 8413857, EX 8414777, Jackpot, Sweet Scarlet, EX 8415187, Welcome, and Tuxedo. Rust pressure was heavy this year, with disease observed while plants were in the whorl stage. Ratings in early August showed differences among cultivars. Early maturing lines tended to have more rust than later-maturing lines. Native Gem and Early Ambrosia had more rust than expected based on their maturity dates, and EX 8410297, EX 8414837, and EX 8410307 had less rust than expected based on their maturity dates. Other cultivars with very low rust included BC-0801, Buckeye, EX 8414777, PX 6803, Jackpot, and Kandy Plus. A storm in early August caused heavy to severe lodging in the following varieties: Bon Appetit TSW, Buckeye, EX 8434167, Friendship, Native Gem, Summer Flavor 79BC, and July Gold. Welcome and PX 6803 showed moderate lodging. If lodging is not considered, the most promising bicolor cultivars included (from earliest to latest maturity): **Bon Appetit TSW, EX 8414837, EX 8410307, Jackpot and Serendipity**. The following bicolors also performed fairly well **Friendship**, and **EX 8313857**. Yellow cultivars in general were not as attractive as the bicolors this year. The most promising yellow cultivar was **Tuxedo**. Other yellow cultivars which looked promising included **Honey Select** and **Kandy Plus**. The white experimental EX 8415187 looked promising aside from below-average emergence. A cultivar with red kernels, Sweet Scarlet, had vigorous plants with good ear quality. The kernel color at harvest varied from red and yellow mix to red as the variety matured. After cooking, kernels turned a purplish color.

The trials were conducted on a Tracy Sandy Loam, pH 6.1, fertilized before planting with 14 - 7 - 29 at 100 lb./A N, 50 lb./A P<sub>2</sub>O<sub>5</sub>, and 209 lb./A. The trial was arranged as a randomized complete block design with three replications. Cultivars were assigned to individual plots 1 row (36 in.) wide by 25 ft. long. One hundred seed per plot were seeded May 17. Two weeks after planting emergence was determined, and then plants were thinned to achieve a population of 35 plants per 25 ft of row (20,328 plants/A). Weeds were controlled with a combination of Atrazine 9-0 (1 lb./A) and Dual II Magnum (1.3 pt./A), followed by cultivation and hand weeding. Irrigation was applied through overhead sprinklers in mid-July and early August. To control rust, Dithane DF was applied on June 30, July 7, and July 13 at 1.5 lb./A. To control armyworm, European corn borer, and corn earworm, Pounce was applied on July 13, Aug. 4, and Aug. 11 at 7 to 8 oz./A. On August 2, plants were rated for rust. The main ear leaf was examined on three plants per plot, and the area covered with rust pustules estimated. On August 7, following a storm which caused lodging in corn, observations were taken on the percentage of plants fallen over in each plot.

Each plot was harvested when corn reached marketable stage. The number and weight of marketable ears in each plot were determined. Three ears from each plot were used to evaluate degree of husk

cover, degree of tip fill, and average ear diameter and length after husking. All ratings were on a scale of 1 (very poor) to 9 (excellent). Specifics of scale for husk cover and tip fill are:

<u>Rating</u>	<u>Husk Cover</u>	<u>Tip Fill</u>
9	greater than 1" beyond cob	Completely filled to tip of cob
8	1" and tight	Filled nearly to tip
5	1/2 " and tight	1/2 " of cob unfilled
2	ear showing	greater than 1.5" of cob unfilled

Data were analyzed using ANOVA followed by mean separation using Fisher's protected least significant difference. The relationships between ear size and rust, and average days to harvest were analyzed using regression analysis.

Table 1. Yield, ear size, and quality of sugar-enhanced (se) sweet corn in Northern Indiana, 2000.

Cultivar	Co.	Color	Days to Harvest	Yield of Marketable Ears		Average Ear Weight	Ear Length	Ear Diameter	Husk Cover	Tip Fill	Rust	Emergence
			(DAP)*	(doz/A)	(cwt/A)	(lb)	(in)	(in)	(1-9)#	(1-9)#	(%)	(%)
Ambrosia	CR	BI	86	1583	139	0.73	7.3	1.96	7.7	3.1	12	84
BC-0801	NV	BI	87	1621	154	0.80	7.9	1.71	9.0	4.0	2	92
Bon Appetit TSW	MM	BI	79	1612	153	0.79	7.3	1.89	9.0	8.8	32	82
Buckeye	MM	BI	87	1321	107	0.67	7.1	1.89	8.8	3.0	7	83
Delectable	CR	BI	89	1418	131	0.76	7.8	2.00	8.6	4.3	7	84
Early Ambrosia	CR	BI	83	1162	77	0.55	6.6	1.76	3.6	2.4	50	81
EX8410297	AS	BI	84	1709	164	0.79	8.2	1.85	8.8	8.3	6	83
EX8410307	AS	BI	85	1694	188	0.92	8.0	1.94	8.8	7.4	4	84
EX8410317	AS	BI	86	1709	148	0.72	8.0	1.67	9.0	7.7	26	88
EX8413857	AS	BI	88	1563	131	0.69	7.7	1.78	8.7	6.7	17	87
EX8414777	AS	BI	88	1210	89	0.61	7.1	1.78	5.0	6.9	7	76
EX8414787	AS	BI	84	1660	148	0.74	7.7	1.79	7.3	6.3	26	88
EX8414837	AS	BI	85	1728	165	0.80	8.0	1.82	8.1	7.6	4	91
EX8415097	AS	BI	87	1631	138	0.70	7.5	1.83	7.6	6.2	10	90
EX8434167	AS	BI	77	1646	82	0.42	6.6	1.62	8.0	3.7	41	89
Fleet	CR	BI	72	789	35	0.37	4.9	1.47	7.7	6.1	51	87
Friendship	MM	BI	83	1660	155	0.78	7.0	1.83	9.0	4.9	19	86
Jackpot	NV	BI	89	1534	159	0.86	8.1	1.90	9.0	7.9	3	93
Mystique	CR	BI	85	1467	129	0.73	7.8	1.85	8.8	5.3	17	85
Native Gem	MM	BI	80	1583	94	0.50	6.9	1.62	6.1	4.2	49	78
Precious Gem	MM	BI	88	1370	123	0.76	8.1	1.93	8.4	3.9	16	78
PX6803	PS	BI	89	1210	114	0.78	8.3	1.97	5.4	4.4	5	26
Seneca Dancer	PS	BI	93	1452	135	0.77	8.0	1.92	5.2	4.0	8	67
Seneca Nation	PS	BI	86	1679	133	0.66	7.0	1.74	8.6	4.7	15	84
Seneca Spring	PS	BI	79	1583	105	0.56	7.1	1.76	9.0	5.4	36	84
Serendipity	NV	BI	89	1307	117	0.76	7.4	1.74	9.0	5.8	17	87
Summer Flavor 79BC	AC	BI	87	1341	113	0.71	7.1	1.90	8.4	3.1	24	70
Trinity	CR	BI	75	1307	71	0.45	5.4	1.57	8.4	5.3	62	88
Sweet Scarlet	AS	Red	88	1597	128	0.66	7.9	1.66	8.9	8.7	12	94
EX8415187	AS	W	86	1583	142	0.75	7.7	1.81	8.6	7.7	23	70
EX8414247	AS	Y	88	1500	133	0.74	7.3	2.00	8.2	4.0	17	86
Honey Select	NV	Y	89	1486	143	0.80	8.2	1.90	8.1	3.6	13	89
Incredible	CR	Y	89	1467	141	0.80	8.2	1.97	4.6	4.4	7	83
July Gold	MM	Y	83	1563	134	0.71	6.9	1.86	7.6	3.4	37	85
Kandy Plus	NV	Y	89	1534	174	0.95	8.8	2.01	6.6	5.7	4	83
Summer Flavor 64Y	AC	Y	83	1583	106	0.56	7.5	1.64	6.1	2.9	25	69
Summer Flavor 73Y	AC	Y	86	1583	146	0.77	7.4	2.00	5.3	4.2	18	80
Tuxedo	MM	Y	85	1597	150	0.79	8.4	1.81	8.1	8.0	25	70
Welcome	MM	Y	80	1563	113	0.60	6.9	1.76	8.6	7.7	28	93
Grand mean			85	1503	128	0.71	7.5	1.82	7.7	5.4	20.0	82
LSD .05†				262	24	0.09	0.8	0.13	2.0	2.5		13
r <sup>2</sup> for regression vs DAP††						0.49	0.59	0.44			0.62	

\*DAP: days after planting.

#Husk cover and tip fill: 1 to 9 scale; 2=poor, 5=acceptable, 8=good.

†Means differing by more than this amount are significantly different at P≤.05.

††r<sup>2</sup> is the proportion of variability explained by harvest date.