

**Report to the Oregon Processed Vegetable Commission
1995-1996**

1. Title: Sweet Corn Variety Evaluation
2. Project Leaders: J. R. Baggett, Horticulture
Brian Yorgey, Food Science and Technology
3. Project Status: Terminating June 30, 1996
4. Project Funding: \$ 6,000 field trials
\$ 4,872 processing
\$10,838

Funds were used for research farm expenses and labor for harvesting, processing, and evaluation of corn samples.

5. Objectives:

To determine the production and processing potential of new introductions of sweet corn.

6. Report of Progress:

- A. Replicated plot trials of standard sugary (su) and SE (sugary enhanced) corn varieties were planted on May 31, and supersweet (sh) varieties were planted in a separate field on June 23. In each case, there were four replications, each 30 feet long in rows three feet apart. Replications were arranged in randomized blocks. The plots received 450 lbs/A of 12-29-10 fertilizer banded at planting, and a sidedress of 100 lbs N as urea on 25 July. In the May 31 planting, the SE varieties were separated from the su varieties by a block of SE rows to minimize the effect of the su on SE varieties. Yellow and bi-color varieties were grown together. Additional varieties of each type of corn were planted in non-replicated plots for observation and yield estimates.

In each planting, plots were overseeded and thinned to stand about 9" apart, or a population of 19,000 per acre. Harvests were made at about 72% moisture for su and SE varieties and about 77% for supersweet varieties, as determined by vacuum oven method. Factors observed are shown in the tables. Except for descriptive observations (Tables 3 and 6), and for the observation plots, all data were obtained separately for each replication.

Varieties which appeared to have promise for processing were canned and frozen at the Food Science and Technology pilot plant. Objective data and panel evaluations of processed corn samples will be reported at a later date.

- B. Varieties which were noted to have sufficient merit to justify further trial are listed below. All these varieties were processed.

SE Varieties:

GH 1887 - refined, attractive ears, good cylindrical shape, good yield (9.3 T/A), tender, sweet

GH 2684 - very good cylindrical shape, uniform, straight rows, good yield (8.9 T/A), tender, sweet

Empire yielded very well (10.4 T/A), but was generally rough in appearance. GH 5608 had good flavor and appearance, but yields were below average and toughness readings were the highest in the sugary-SE trial.

Sugary (su) Varieties:

DMC 20-04 - uniform, attractive but poor tip fill, many good second ears, good yield (8.1 T/A)

GH 1861 - uniform, very good tip fill, good yield (8.4 T/A), good flavor

Jubilee - very uniform, nice looking ears, deep kernels, good yield (9.1 T/A), good flavor

DMC 20-38 yielded very well (9.9 T/A), but poor ear uniformity may be a problem.

Supersweet (sh₂) Varieties:

Crisp 'n Sweet 710A - uniform, fair yield (6.9 T/A), attractive, neat ears, but fairly tough

Marvel - uniform, large ears, fair yield (7.4 T/A), sweet and very tender

Victor - large ears, good yield (8.5 T/A), but tough

Supersweet Jubilee - very uniform, refined, attractive ears, fair yield (7.6 T/A), very good flavor

Krispy King - fat ears, very uniform, very good tip fill, good yield (8.4 T/A), good flavor but tough

FMX 416 yielded very well (9.0 T/A), but ear uniformity and shape and toughness may be problems.

7. Summary:

Seventeen SE and sugary (su) varieties and 19 supersweet varieties of corn were tested in replicated or observation plots. Four SE, four sweet, and six supersweet varieties were considered to be of interest and candidates for further testing. Twenty varieties were canned and frozen for objective evaluations and industry panel evaluations.

8. Signatures:

Redacted for Privacy

Project Leader:

Redacted for Privacy

Project Leader:

Redacted for Privacy

Department Head:

Department Head:

Redacted for Privacy

Table 1. Yield and ear measurements, sugary enhancer (se) and sweet (su,) corn replicated trial, Corvallis, 1995.²

Variety	Source ¹	Type ⁴	Silk Date	Days to Harvest	% H ₂ O	Stand	Good Ears			Culls		Lbs/ Ear	Ear Length (in.)	Ear Diam. (in.)	Kernel Depth (mm)	Pericarp Toughness ³
							1000/A	T/A	No/Plant	1000/A	T/A					
DMC 20-10	1	Su	8/1	91	72.8	34	25.6	7.0	1.3	2.6	0.5	0.55	8.3	1.80	10.0	101
DMC 20-04	1	Su	8/1	91	72.7	33	28.8	8.1	1.5	1.7	0.4	0.57	8.2	1.88	10.8	116
GH 1861	2	Su	7/31	94	70.8	34	24.1	8.4	1.2	2.6	0.6	0.70	8.3	2.02	12.0	117
GH 1887	2	Se het.	8/5	98	72.2	33	28.5	9.3	1.5	2.2	0.4	0.65	8.5	2.05	12.2	99
GH 5608	2	Se het.	8/7	99	72.6	32	17.9	7.0	1.0	2.8	0.7	0.78	8.8	2.15	12.0	146
GH 2684	2	Se het.	8/6	100	72.7	34	25.1	8.9	1.3	0.9	0.2	0.71	9.0	2.01	12.2	88
Jubilee	2	Su	8/6	102	71.9	33	26.7	9.1	1.4	0.9	0.2	0.69	8.4	2.02	13.2	92
Splendor	3	Su	8/7	102	73.3	34	22.4	8.7	1.1	4.4	1.2	0.78	9.2	2.06	12.0	96
DMC 20-38	1	Su	8/7	103	72.8	33	26.1	9.9	1.4	4.2	1.1	0.76	8.7	2.11	13.2	127
Empire	2	Se het.	8/7	103	72.2	34	27.7	10.4	1.4	1.9	0.4	0.75	8.9	2.10	13.5	122
DMC 20-35	1	Su	8/9	105		34	23.2	7.3	1.2	1.9	0.4	0.63	8.0	2.02	11.0	94
LSD at 5%							4.2	1.5	0.2	1.8	0.4	0.04	0.2	0.06	0.7	10

¹Planted May 31 in rows 36" apart, thinned to 9" between plants. All values shown are means of 4 replications arranged in randomized complete blocks. All data except cull no. and T/A were obtained from typical husked good ears. For ear length, ear diameter, and tenderness, the value shown is the average of 10 individual ear measurements. All varieties are yellow.

²Sources: 1 = Harris Moran, 2 = Rogers, 3 = Crookham.

³Endosperm type: su = sweet, se = sugary enhancer.

⁴Comparative scale determined by a spring-operated puncture gauge; lower numbers indicate more tender pericarp.

Table 2. Yield and ear measurements, sugary enhancer (se) and sweet (su,) corn observation trial, Corvallis, 1995.¹

Variety	Source ²	Type ³	Silk Date	Days to Harvest	Stand	Good Ears			Culls		Lbs/ Ear	Ear Length (in.)	Ear Diam. (in.)	Kernel Depth (mm)	Pericarp Toughness ⁴
						1000/A	T/A	No/Plant	1000/A	T/A					
Swis 519-3	1	Se	8/6	103	33	22.1	8.8	1.2	4.1	1.1	0.80	10.0	2.0	12	148
Swis 490-0	1	Se	8/7	103	28	23.8	9.3	1.5	2.9	0.7	0.79	9.0	2.1	13	104
Swis 1-3	1	Se	8/8	104	31	16.3	5.0	0.9	0.6	0.1	0.61	8.0	1.9	12	132
Swis 399-3	1	Se	8/8	104	32	23.2	6.7	1.3	7.0	1.6	0.58	7.8	1.9	12	106
Swis 717-9	1	Se	8/19	88	28	20.3	6.5	1.3	2.3	0.7	0.64	8.4	2.0	12	149
Swis 887	1	Se	8/23	92	24	26.1	7.3	1.9	3.5	0.6	0.56	7.9	1.9	10	145

¹Planted May 31 (except Swis 717-9 and Swis 887, which were planted June 23) in rows 36" apart, thinned to 9" between plants. Yield estimates are from a single 25' plot. All data except cull no. and T/A were obtained from typical husked good ears. For ear length, ear diameter, and tenderness, the value shown is the average of 10 individual ear measurements. All varieties are yellow.

²Sources: 1 = United Agri Products.

³Endosperm type: su = sweet, se = sugary enhancer.

⁴Tenderness determined by a spring-operated puncture gauge; lower numbers indicate more tender pericarp.

Table 3. Descriptive observations, sugary enhancer (se) and sweet (su,) corn variety trial, Corvallis, 1995.*

Variety	Source ¹	Kernel Refinement	Row Straightness	Tip Fill	Cylind. Shape	Ear Unif.	Mat. Unif.	Kernel Unif.	Flavor	Overall Score	Row #	Notes
DMC 20-10	1	3	2	3.5	3	3	4	2	4	3	14-18	small ears, shallow kernels, curved, good corn flavor
DMC 20-04	1	3	3	2	3	3.5	4	3.5	3	3.5	14-18	some curved ears, nice looking except for tip fill, many good second ears
GH 1861	2	3	2	5	3	3.5	4	2	4	3	18-20	no suckers, many curved ears, large, uniform but rough looking ears, good flavor
GH 1887	2	4	3	2.5	4	2.5	3	3	4	3.5	18-20	variable for tip fill, size and shape; good color, tender, sweet, good yield
GH 5608	2	4	3	3	4	2.5	3	3	4	3	20-22	no suckers, only one ear per plant, long ears, some with poor husk cover, some curved
GH 2684	2	3	4	3	4.5	2.5	4	4	4	4	16-18	hard to pick, several deformed ears, most ears are long, cylindrical, straight rows, tender and sweet
Jubilee	2	4	4	4	4.5	4.5	4.5	4	4	4.5	16-18	best looking corn in the trial, very deep kernels
Splendor	3	4	2	4	2	3	2.5	2	3	2.5	20-24	badly curved ears, rough appearance, jumbled tips
DMC 20-38	1	3	3	3	2	2.5	3	3	2	3	16-24	best ears look good but many have bad tips, some curved, some very fat, good yield
Empire	2	3	2	2.5	3	3	4	2	2	2.5	16-18	hard to pick and husk, pale color, curved ears, rough appearance, very good yield
DMC 20-35	1	4	2	3	2	1.5	2	3	1.5	2	16-20	pale color, many ears with poor tip fill, shallow kernels, strong flavor, not sweet
Swis 519-3	4	2	3	2	1	2	2	3	2	2	18-22	long pointed ears, tips protrude from husks and turn green; tough, not sweet

Table 3. Descriptive observations, sugary enhancer (se) and sweet (su₁) corn variety trial, Corvallis, 1995 (cont.).²

Variety	Source ¹	Kernel Refinement	Row Straightness	Tip Fill	Cylind. Shape	Ear Unif.	Mat. Unif.	Kernel Unif.	Flavor	Overall Score	Row #	Notes
Swis 490-0	4	3	2.5	4	2	3	3	2	2	2.5	16-18	pale color, curved ears, rough appearance, not sweet
Swis 1-3	4	3	3	4	2	2	3	2	4	2	16-20	poor yield, less than one ear per plant, uneven pollination at butt end, good flavor
Swis 399-3	4	4	2	3	2	2	3	2	4	2.5	16-18	small ears, some very rough appearance from uneven kernels, good flavor
Swis 717-9	4	3	3	2.5	3	1.5	3	3	2	2	14-18	highly variable, many rough, poorly pollinated ears with poor tip fill, not sweet, tough
Swis 887	4	4	3	3	4	2.5	3	4	2	3	18-20	generally refined but poor tips, some rough poorly pollinated ears, shallow kernels, tough

¹Planted May 31. Scores 1-5 scale, 5 = best. Overall score, related to general characteristics of harvested ears, is based on processing potential and does not necessarily reflect home garden potential.

²Sources: 1 = Harris Moran, 2 = Rogers, 3 = Crookham, 4 = United Agri Products.

Table 4. Yield and ear measurements, supersweet (sh₂) corn replicated trial, Corvallis, 1995.*

Variety	Source [†]	Silk Date	Days to Harvest	% H ₂ O	Stand	Good Ears			Culls		Lbs/ Ear	Ear Length (in.)	Ear Diam. (in.)	Kernel Depth (mm)	Pericarp Toughness ^{**}
						1000/A	T/A	No/Plant	1000/A	T/A					
Contender	1	8/14	83	78.7	35	20.3	6.6	1.0	1.5	0.3	0.65	8.1	2.00	11.0	114
Crisp 'n Sweet 710A	1	8/22	87	79.9	36	20.3	6.9	1.0	0.4	0.1	0.68	8.5	2.00	11.8	137
FMX 324	2	8/22	87	78.5	34	19.0	7.0	1.0	1.3	0.3	0.74	7.9	2.14	11.0	130
Marvel	1	8/22	88	77.8	34	20.5	7.4	1.0	0.7	0.2	0.72	8.4	2.08	11.8	107
FMX 412	2	8/22	88		33	17.3	4.6	1.0	0.4	0.1	0.53	7.7	1.90	11.0	121
FMX 416	2	8/23	90	78.6	38	25.9	9.0	1.2	1.6	0.3	0.70	7.6	2.10	11.3	154
Victor	2	8/22	90	78.4	38	22.2	8.5	1.0	0.7	0.2	0.77	8.2	2.11	10.8	159
Supersweet Jubilee	3	8/23	90	76.8	34	26.9	7.6	1.4	1.7	0.3	0.57	8.1	1.93	12.0	118
GSS 6273	3	8/23	91	78.7	34	21.1	6.1	1.1	4.4	0.9	0.58	8.0	1.99	11.0	104
LSD at 5%						2.7	0.9	0.1	2.0	0.4	0.02	0.1	0.03	NS	10

*Planted June 23 in rows 36" apart, thinned to 9" between plants. All values shown are means of 4 replications arranged in randomized complete blocks. All data except cull no. and T/A were obtained from typical husked good ears. For ear length, ear diameter, and tenderness, the value used for each replication was the average of 10 individual ear measurements. All varieties are yellow.

[†]Sources: 1 = Crookham, 2 = Ferry Morse, 3 = Rogers.

^{**}Tenderness determined by a spring-operated puncture gauge; lower numbers indicate more tender pericarp.

Table 5. Yield and ear measurements, supersweet (sh₂) corn observation trial, Corvallis, 1995.*

Variety	Source ^y	Silk Date	Days to Harvest	Stand	Good Ears			Culls		Lbs/ Ear	Ear Length (in.)	Ear Diam. (in.)	Kernel Depth (mm)	Pericarp Toughness ^x
					1000/A	T/A	No/Plant	1000/A	T/A					
Sheba	1	8/11	81	29	13.9	4.0	0.8	0.6	0.1	0.58	8.5	1.9	11	98
Krispy King	2	8/22	88	36	23.8	8.4	1.2	4.1	0.8	0.70	8.1	2.2	13	148
Shis 31-1	3	8/22	88	26	25.0	6.6	1.7	1.7	0.3	0.53	8.1	1.9	11	131
Endeavor	1	8/22	88	40	20.9	6.5	0.9	1.7	0.3	0.63	7.8	2.0	12	152
FMX 415	4	8/22	88	36	22.1	7.4	1.1	0.6	0.1	0.67	8.0	2.0	12	162
Punchline	1	8/22	88	44	26.1	7.0	1.0	0	0	0.53	7.7	1.9	10	132
Shaker	1	8/22	89	33	24.4	6.9	1.3	0	0	0.56	8.7	1.9	11	117
Shis 44-1	3	8/24	92	32	19.2	6.9	1.0	2.9	0.7	0.72	8.4	2.0	12	122
XPH 3091	1	8/25	92	34	20.9	6.5	1.1	0.6	0.3	0.62	8.6	1.9	11	134
XPH 3121	1	8/25	94	30	16.8	4.4	1.0	2.9	0.6	0.52	7.7	1.9	12	126

*Planted June 23 in rows 36" apart, thinned to 9" between plants. Yield estimates are from a single 25' plot except in the case of Krispy King, where an average of 2 plots was used. All data except cull no. and T/A were obtained from typical husked good ears. For ear length, ear diameter, and tenderness, the value shown is the average of 10 individual ear measurements. All varieties are yellow.

^ySources: 1 = Asgrow, 2 = Rogers, 3 = United Agri Products, 4 = Ferry Morse.

^xComparative scale determined by a spring-operated puncture gauge; lower numbers indicate more tender pericarp.

Table 6. Descriptive observations, supersweet (sh₂) corn trial, Corvallis, 1995.*

Variety	Source ^y	Kernel Refinement	Row Straightness	Tip Fill	Cylind. Shape	Ear Unif.	Mat. Unif.	Kernel Unif.	Flavor	Overall Score	Row #	Notes
Contender	1	2	2-4	3	3	2	2	3	3	2.5	16-20	pale color, kernels get quite coarse, fairly tender, very sweet but not much corn flavor
Crisp 'n Sweet 710A	1	3	4	3	3.5	4	4	4	3.5	4	16-18	very uniform, nice looking, neat ears, somewhat tough, sweet
FMX 324	2	4	2	4	2	3	3.5	2.5	3.5	2.5	20-22	picks very easily, short fat ears, some with bad gaps, jumbled rows and uneven kernels, very sweet
Marvel	1	3	3	3	3	3	4	3	3.5	3	18-20	some rough ears with jumbled rows, many ears with skips and jumbled tips, tender
FMX 412	2	4	3	4	3	2.5	2.5	3	4	2	18	small ears, poor yield, many with blanks in butt end, possible home garden, very good flavor
FMX 416	2	3	3	4.5	2	2.5	3.5	3	2.5	2.5	18	variable for kernel refinement and row straightness, short fat ears, many curved, tough
Victor	2	3	3.5	3.5	3	3	3.5	3	3.5	3	16-20	some curved ears, pale color, tough
Supersweet Jubilee	3	4	4.5	3.5	4	4	4	4.5	5	4.5	16-18	good color, many small but useable second ears, very refined, attractive ears, very good flavor
GSS 6273	3	4	3	2	3	2.5	2.5	3	5	2.5	18-20	quite variable in size, shape and maturity, many very rough ears, some curved, very sweet and tender
Sheba	4	3.5	3	2	3	3	2	3	4	2.5	18	very poor yield, less than one ear per plant, hard to pick, poorly developed tips, possible good home garden variety, early and sweet
Krispy King	3	2.5	3	5	4	4	4	3.5	4	3.5	18	fat ears, somewhat coarse, sweet but fairly tough
Shis 31-1	5	3.5	4	2	3	2	3	3.5	3.5	2.5	14-18	pale color, small ears, some very poorly filled tips, some coarse ears
Endeavor	4	2.5	2.5	3	3.5	3	3	2.5	2.5	2.5	16-18	less than one ear per plant, fairly coarse and rough, tough

Table 6. Descriptive observations, supersweet (sh₂) corn trial, Corvallis, 1995 (cont.).^a

Variety	Source ^b	Kernel Refinement	Row Straightness	Tip Fill	Cylind. Shape	Ear Unif.	Mat. Unif.	Kernel Unif.	Flavor	Overall Score	Row #	Notes
FMX 415	2	2.5	2.5	4	2.5	2	3	2.5	3.5	2.5	16	variable shape, some fat, some thin, some curved, pale color, tough
Punchline	4	3	3	3	3	2.5	3	3	4	3	16-18	good color, neat small ears but some very small, shallow kernels
Shaker	4	4	3.5	2	3	3.5	4	4	4	3	16-18	very long narrow ears, neat but very poor tip fill, sweet and tender
Shis 44-1	5	2	3	2	2	2	2	3	2	2	16-20	long, pointed, curved ears, coarse
XPH 3091	4	1.5	3	2	2.5	3	3	2	3.5	2	16-18	very long narrow ears, tips poorly filled and jumbled, coarse kernels
XPH 3121	4	3.5	3.5	2.5	3	2	2	3.5	3.5	2.5	16-18	poor yield, small ears, some pointed, some very poor tips, very sweet

^aPlanted June 23. Scores 1-5 scale, 5 = best. Overall score, related to general characteristics of harvested ears, is based on processing potential and does not necessarily reflect home garden potential.

^bSources: 1 = Crookham, 2 = Ferry Morse, 3 = Rogers, 4 = Asgrow, 5 = United Agri Products.

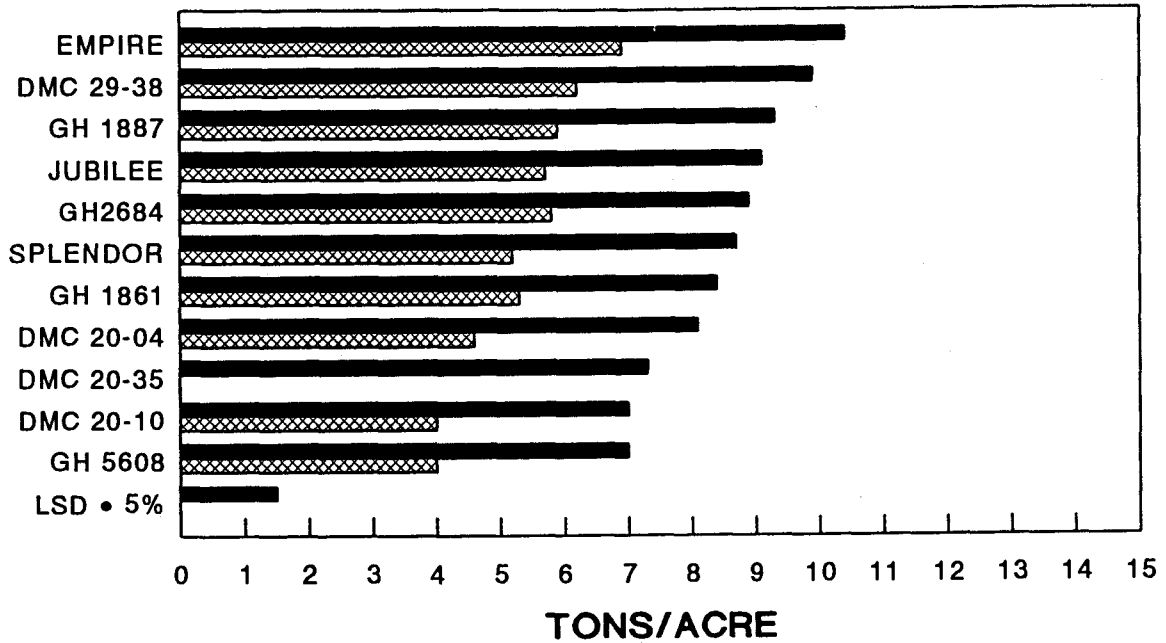
Table 7. Seedling vigor, sugary enhancer (se) and sweet (su₁) corn trial, Corvallis, 1995.

Variety	Scores ^z				AV
	Rep 1	Rep 2	Rep 3	Rep 4	
DMC 20-10	4	4	3	3	3.5
DMC 20-04	4	3	5	5	4.25
GH 1861	3	3	3	3	3.0
GH 1887	2	2	1	1	1.5
GH 5608	3	3	3	3	3.0
GH 2684	2	3	2	2	2.25
Jubilee	2	2	1	1	1.5
Splendor	3	2	1	2	2.0
DMC 20-38	3	2	2	2	2.25
Empire	3	2	2	2	2.25
DMC 20-35	3	4	2	2	2.75
Swis 519-3	3				
Swis 490-0	3				
Swis 1-3	2				
Swis 399-3	3				

^zScores 1-5 scale, 5 = most vigorous.

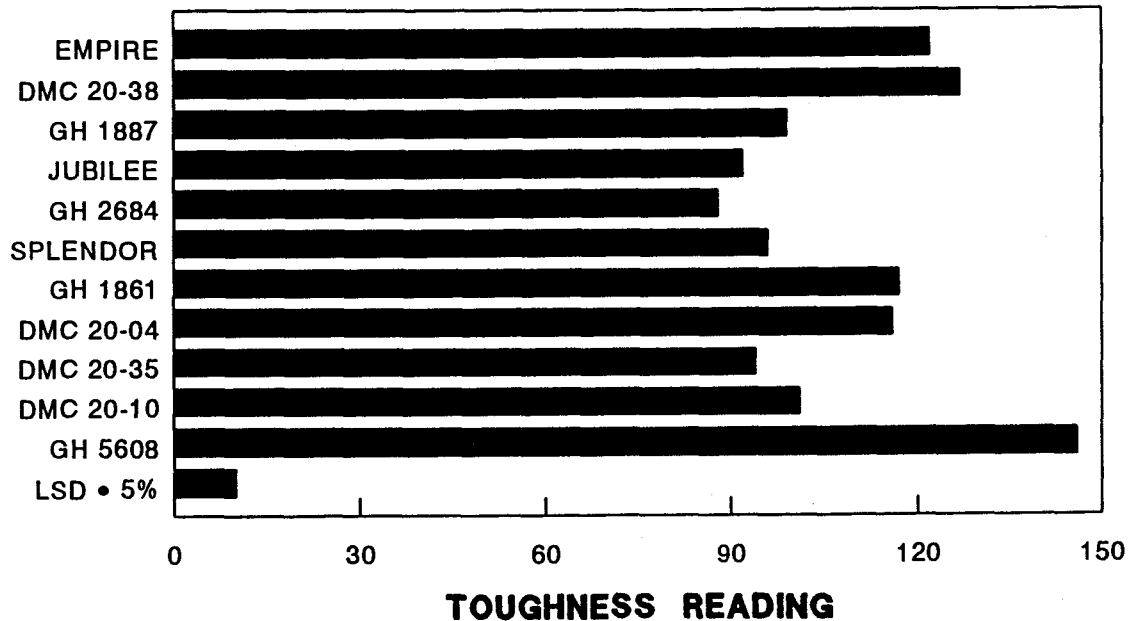
SUGARY & SE CORN YIELD REPLICATED 1995

HUSKED EARS
 NET CUT CORN



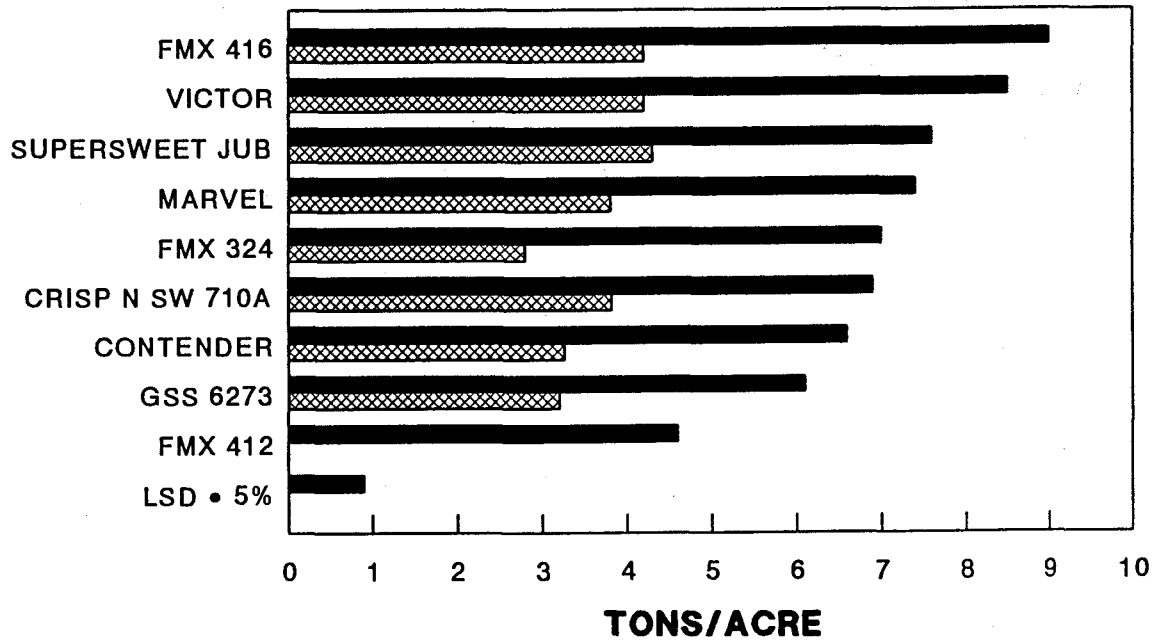
SUGARY AND SE CORN TOUGHNESS REPLICATED, HUSKED GOOD EARS

CORVALLIS, OREGON 1995



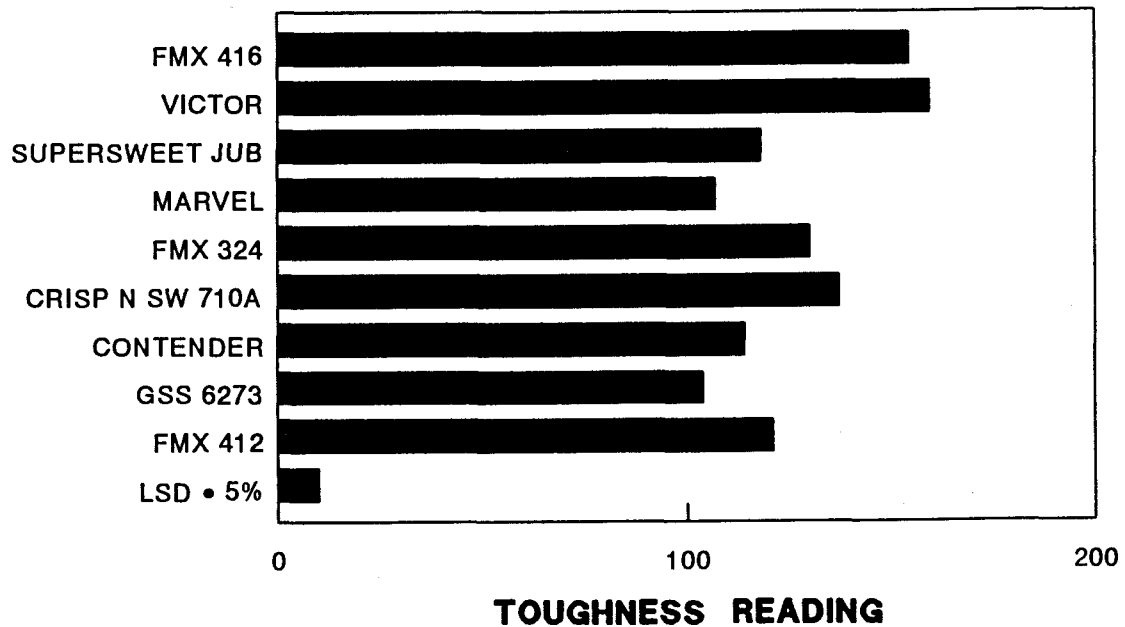
SUPERSWEET CORN YIELD REPLICATED 1995

HUSKED EARS
 NET CUT CORN

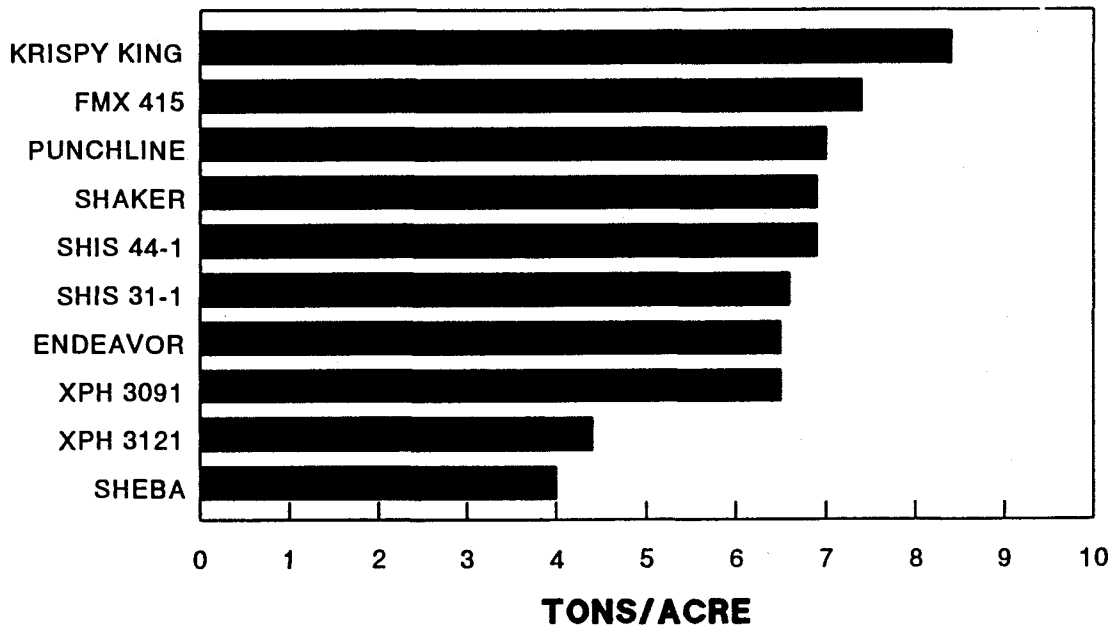


SUPERSWEET CORN TOUGHNESS REPLICATED TRIAL

CORVALLIS, OREGON 1995



**SUPERSWEET CORN YIELD
OBSERVATION PLOTS
CORVALLIS, OREGON 1995**



**SUPERSWEET CORN TOUGHNESS
OBSERVATION PLOTS
CORVALLIS, OREGON 1995**

