

**Report to the Oregon Processed Vegetable Commission
2008–2009**

1. Title: Identification of High Yielding, Root Rot Tolerant Sweet Corn Hybrids
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4. Project Status: Terminating 30 June, 2009
5. Project Funding: \$23,398 total

Funds were used for a major portion of the support of a vegetable technician, student labor, supplies, processing plant evaluation of moisture content, and research farm expenses.

6. Objective: Identify sweet corn hybrids with suitable processing quality that have high, stable yields and tolerance to root rot disease complex.
7. Report of Progress:

Three trials were planted at two locations on 26 June to evaluate sweet corn hybrids for performance under root rot conditions. Two locations (Vegetable Research Farm and Botany Farm) with high root rot incidence were used. Both have had continuous corn for at least the past six years.

Table 1. Sweet corn entries grown in trials on root rot infested ground at the Oregon State University Botany and Vegetable Research Farms, Corvallis, 2008.

Entry	Company	Type	Color
GH 6462	Rogers	su	yellow
GH 6377P	Rogers	su	yellow
GH 2171	Rogers	su	yellow
GH 4927	Rogers	su	yellow
GH 8267P	Rogers	su	yellow
Jubilee	Rogers	su	yellow
GSS 6550P	Rogers	sh2	yellow
GSS 2259P	Rogers	sh2	yellow
GSS 1477	Rogers	sh2	yellow
GSS 7314	Rogers	sh2	yellow
GSS 7051	Rogers	sh2	yellow
SS Jubilee	Rogers	sh2	yellow
A08765591	Seminis	sh2	yellow
A08735590	Seminis	sh2	yellow
A08745919	Seminis	su	yellow
A8475418	Seminis	su	yellow
A08735807	Seminis	su	yellow
A08324148	Seminis	su	yellow

Sugary and supersweet hybrids were grown in isolation from one another on the Vegetable Farm to allow the collection of ear quality data. At the Botany Farm, supersweet and sugary types were grown together, and only yield was evaluated. The Vegetable Farm trials consisted of four replicates with two row plots 30 feet in length, while only one row per plot was established at the Botany Farm. At the Vegetable Farm, one row of each plot was used to determine yield and for processing evaluation, while the other row was used for root rot evaluation and determining kernel moisture. Hybrids were planted with a belt planter then thinned to normal stand (nine inch spacing on 30 in. rows). Data collected included root rot on the primary, mesocotyl and adventitious roots, browning of the nodes, crown rot at harvest maturity, silking date, kernel moisture, and ear number and weight (including both cull and net weight). Kernel moisture was determined at the OSU Pilot Plant. Raw product evaluation was conducted on those hybrids for which seed company funding was obtained.

Hybrids evaluated in trials are shown in table 1. Eight were supersweet and ten were sugary types from two seed companies. Seminis did not request raw product evaluation so only Rogers material is shown on ear quality tables. Performance over the locations was fairly uniform, with no variety by environment interaction, and entries showed similar ranking for yield and root rot parameters across trials. Average net yields were 7.2, 8.0, and 7.3 T/A, respectively for the Botany Farm, Vegetable Farm sugary and Vegetable Farm supersweet trials, respectively (Tables 2-4). These yields are about one T/A greater than last year, but indicate significant root rot pressure was present in these trials. For sugary hybrids at the Vegetable Farm, six entries (two Seminis, four Rogers) had statistically significantly higher yields than Jubilee (Table 3, Figure 1), but only two of the Rogers hybrids (along with one additional Seminis hybrid) had significantly higher yield at the Botany Farm (Table 2, Figure 1). No sugary entry matched Jubilee for overall quality but two had very good quality along with better yields (Table 5). GH 6377P was in trial last year and performed well. This year, it had a mixed performance for yield in 2008 with top yield at the Vegetable Farm but 6.9 T/A at the Botany Farm. It did continue to have very good ear quality and flavor (Table 5). In the supersweet trial, five entries (one Seminis and four Rogers hybrids) had higher yields than SS Jubilee at the Vegetable Farm, but only three of these (one Seminis and two Rogers hybrids) were significantly better at the Botany Farm. All supersweet entries evaluated had very good to excellent quality, though none quite matched SS Jubilee (Table 6). For the third year in a row, GSS 1477 performed well with top yields at both the Vegetable and Botany Farms (Tables 2 & 4, Figure 1), but continues to have issues with ear quality (Table 6).

Root rot pressure was extremely severe at all three locations with primary root rot essentially 100% (Tables 7-10). Mesocotyl root rot was nearly as severe although single hybrids with significantly less root rot than the check were observed in the different trials (Tables 7-9). No significant differences were observed in the supersweet trial at the Vegetable Farm (Table 10). Significant differences in adventitious root rot were observed in all trials (Tables 7-10, Figure 2). Overall, 10 hybrids had significantly less than Jubilee and eight significantly less than SS Jubilee. The top yielders were not necessarily the hybrids with the lowest adventitious root rot incidence. Nearly all hybrids showed significantly less node browning and crown rot than the checks (Tables 7-10, Figures 3 & 4). The only hybrids not significantly different were GH4927 and A08765591 in both trials when compared to both checks. Root worm damage was moderate this year and with mostly non-significant differences among hybrids.

When root rot and yield parameters were subjected to correlation analysis, several moderate to strong significant associations were observed in the analysis of the overall data set (Table 11). Mesocotyl and adventitious root rot, brown node and crown rot, were all moderately to strongly correlated. Primary root rot and root worm damage showed no correlation with any other variable. Net T/A, ear length, ear diameter, and kernel depth all showed moderate to strong negative correlations with adventitious root rot, brown node and crown rot (with the exception of ear length and crown rot). Yield and yield parameter traits (ear length and diameter, kernel depth) were generally positively correlated. In addition, there was a positive correlation among stand and yield traits (except ear length). When trials were analyzed separately correlations were weaker, but general tendencies held (data not shown).

8. Conclusions:

A number of hybrids appear to have better performance under root rot conditions than Jubilee and Supersweet Jubilee. Several sugary hybrids appear to have potential as root rot tolerant re-

placements for Jubilee. Of these, GH 6377P had the best overall yield performance and very good ear quality, and GSS 1477 has promise as a supersweet hybrid for processing if quality characteristics are acceptable to processors. Seminis hybrids that warrant another look are A8475418, A08324148, A08735807, and A08735590.

Table 2. Yield and ear measurements for selected sweet corn hybrids grown in a root rot trial on the OSU botany research farm, Corvallis, 2008.^z

Entry	Days to Harvest	Plants /Plot (no.)	Gross T/A	Net Ears /Plot (no.)	Ears / Plant (no.)	Lb/Ear	Net T/A	Culls T/A	Ear Length (in.)	Ear Dia. (in.)	Kernel Depth (mm)
A08735807	109	27.3	14.8	30.0	1.11	0.71	9.3	0.11	7.7	2.10	13.3
GSS 1477	106	26.5	13.0	28.5	1.08	0.73	9.1	0.19	8.4	2.08	13.1
GH 8267P	106	26.3	13.3	34.8	1.32	0.57	8.6	0.16	7.4	1.98	11.8
GSS 2259P	112	25.8	12.6	29.8	1.15	0.66	8.6	0.21	8.0	2.08	13.0
GH 6462	106	28.5	12.8	27.5	0.96	0.71	8.5	0.16	7.5	2.14	13.9
A08735590	106	24.5	12.6	25.3	1.04	0.75	8.2	0.08	7.8	2.14	13.1
A8475418	99	26.5	13.7	24.8	0.94	0.68	7.4	0.62	8.2	2.03	11.0
GH 4927	91	26.0	12.7	26.0	1.00	0.63	7.1	0.38	8.0	1.99	12.0
GH 6377P	106	27.0	11.3	27.5	1.02	0.58	6.9	0.16	7.3	1.96	11.4
A08745919	102	27.0	11.5	25.8	0.95	0.59	6.7	0.16	7.5	1.95	12.5
A08324148	99	27.3	12.9	24.3	0.89	0.62	6.6	1.06	8.0	1.93	11.4
GH 2171	95	27.0	9.1	25.0	0.93	0.58	6.3	0.07	6.9	2.05	12.5
Jubilee	98	26.5	10.2	27.5	1.04	0.51	6.2	0.04	7.5	1.88	12.1
GSS 6550P	106	27.0	10.0	29.5	1.10	0.48	6.2	0.10	7.1	1.89	12.5
GSS 7314	95	24.3	9.1	23.3	0.96	0.61	6.2	0.12	7.9	1.96	13.0
A08765591	95	26.0	9.9	24.5	0.94		5.7	0.37	7.9	1.81	8.9
GSS 7051	109	25.8	9.5	24.3	0.93	0.54	5.7	0.10	7.8	1.90	11.8
Supersweet Jubilee	98	24.5	9.1	23.3	0.95	0.53	5.4	0.00	7.8	1.85	11.8
LSD 0.05 ^y		2.9	2.2	5.2	0.19	0.04	1.5	0.35	0.2	0.05	0.8

^zPlanted June 26 in rows 30" apart, thinned to 9" between plants. Harvested plot length was 20'. Gross T/A is the weight of all harvested unhusked ears. All values shown are means of 4 replications arranged in randomized complete blocks. All data except cull T/A were obtained from typical husked good ears.

^yNS = Non-significant.

Table 3. Yield and ear measurements for selected sugary sweet corn hybrids grown in a root rot trial on the OSU vegetable research farm, Corvallis, 2008.^z

Entry	Days to Harvest	% Moisture ^y	Plants/Plot (no.)	Gross T/A	Net Ears/Plot (no.)	Ears /Plant (no.)	Lb/Ear	Net T/A	Culls T/A	Ear Length (in.)	Ear Dia. (in.)	Kernel Depth (mm)	Tender-ness ^x
GH 6377P	102	73.3	26.5	16.7	33.8	1.27	0.68	10.0	0.07	7.6	2.11	13.9	100
GH 8267P	106	72.8*	28.0	13.5	31.8	1.13	0.67	9.2	0.22	7.5	1.98	12.0	95
A8475418	97	73.2*	26.8	13.4	28.3	1.06	0.73	9.0	0.22	8.1	2.11	12.3	
GH 6462	103	73.5	28.3	14.0	25.0	0.88	0.77	8.5	0.72	7.8	2.21	13.4	96
GH 4927	89	73.2	25.5	13.3	32.0	1.27	0.61	8.5	0.00	8.0	1.98	12.3	125
A08324148	97	72.7*	26.5	14.4	27.3	1.03	0.69	8.2	0.09	8.0	2.04	12.3	
A08745919	99	73.0*	28.5	12.3	26.0	0.91	0.63	7.2	0.15	7.4	2.03	12.8	
GH 2171	92	74.3	26.8	10.4	23.0	0.86	0.67	6.7	0.26	7.3	2.15	12.0	109
A08735807	106	73.0*	26.5	11.2	20.5	0.78	0.72	6.4	0.47	7.7	2.09	13.4	
Jubilee	97	71.7	28.3	10.2	26.3	0.93	0.55	6.3	0.21	7.6	1.90	12.4	80
LSD 0.05			3.1	2.5	5.7	0.21	0.04	1.8	0.41	0.2	0.05	0.5	10

^zPlanted June 26 in rows 30" apart, thinned to 9" between plants. Harvested plot length was 20'. Gross T/A is the weight of all harvested un-husked ears. All values shown are means of 4 replications arranged in randomized complete blocks. All data except cull T/A were obtained from typical husked good ears. For ear length and ear diameter, the value used for each replication was the average of 10 individual primary ear measurements. Tenderness value is the average of 10 individual primary ear measurements per replication, determined by a spring-operated puncture gauge; lower numbers indicate more tender pericarp.

^y% moisture was estimated based on pre-harvest sampling for those varieties not sent in for processing (marked with *).

^xOnly those entries from seed companies that requested and paid for quality evaluations are included.

Table 4. Yield and ear measurements for selected supersweet corn hybrids grown in a root rot trial on the OSU vegetable research farm, Corvallis, 2008.^z

Entry	Days to Harvest	% Moisture ^y	Plants/Plot (no.)	Gross T/A	Net Ears/Plot (no.)	Ears/Plant (no.)	Lb/Ear	Net T/A	Culls T/A	Ear Length (in.)	Ear Dia. (in.)	Kernel Depth (mm)	Tenderness ^x
GSS 1477	103	78.4	26.5	14.3	31.3	1.19	0.74	10.1	0.13	8.4	2.10	13.1	108
A08735590	102	77.4*	27.5	13.1	26.5	1.08	0.74	8.6	0.32	7.6	2.15	13.5	
GSS2259P	112	78.7	26.0	11.1	25.0	0.96	0.70	7.7	0.10	7.9	2.06	13.0	148
GSS 7051	105	75.8	24.0	12.1	28.3	1.19	0.60	7.4	0.27	8.2	1.95	12.5	90
GSS 7314	92	78.1	23.0	10.1	25.5	1.11	0.61	6.8	0.45	7.8	1.99	12.5	92
A08765591	92	75.3*	26.8	12.1	26.5	0.99	0.55	6.3	0.87	8.1	1.84	9.9	
GSS 6550P	106	76.3*	25.8	9.7	28.0	1.08	0.51	6.3	0.09	7.2	1.90	12.6	103
Supersweet Jubilee	96	78.0	24.0	9.3	22.3	0.93	0.51	5.0	0.24	7.9	1.84	12.0	85
LSD 0.05			3.2	1.4	4.6	0.14	0.02	1.3	0.34	0.1	0.05	0.6	17

^zPlanted June 26 in rows 30" apart, thinned to 9" between plants. Harvested plot length was 20'. Gross T/A is the weight of all harvested unhusked ears. All values shown are means of 4 replications arranged in randomized complete blocks. All data except and cull T/A were obtained from typical husked good ears. For ear length and ear diameter, the value used for each replication was the average of 10 individual primary ear measurements. Tenderness value is the average of 10 individual primary ear measurements per replication, determined by a spring-operated puncture gauge; lower numbers indicate more tender pericarp.

^y% moisture was estimated based on pre-harvest sampling for those varieties not sent in for processing (marked with *).

^xOnly those entries from seed companies that requested and paid for quality evaluations are included.

Table 5. Ear quality evaluations for selected sugary sweet corn hybrids grown in a root rot trial on the OSU vegetable research farm, Corvallis, 2008.^z

Entry	Days to Harvest	Shape	Refinement	Row Straightness	Tip Fill	Uniformity			Flavor	Overall Score	Row No.	Notes
						Ear	Maturity	Kernel				
GH 6377P	102	4	4	3	2.5	3.5	4	3.5	3	3.5	20-22	Excellent yield; attractive ears; good flavor
GH 8267P	106	4	3.5	3	4.5	3	3	2.5	3	3	16-18	Good yield; uneven kernel size but otherwise attractive ears
GH 6462	103	4	4	4	3	3	3.5	4	3.5	3.5	18-22	Large attractive ears
GH 4927	89	3.5	3	2.5	3	3.5	4	2.5	3	3	18-20	Curved ears; kernels jumbled at tips; severe earworm damage (tip fill hard to judge); somewhat tough
GH 2171	92	3	2.5	2.5	3	2	2.5	2.5	3	2.5	18-22	Cylindrical ears but short and very fat; jumbled rows; large kernels
Jubilee	97	4	4	4	3	2.5	2.5	3.5	4	3	16-18	Ear and maturity variability and poor tip fill may be due to root rot infection (plants are firing)

^zPlanted June 26. Scores based on a 1-5 scale, with 5 = best. Only those entries from seed companies that requested and paid for quality evaluations are included.

Table 6. Ear quality evaluations for selected supersweet corn hybrids grown in a root rot trial on the OSU vegetable research farm, Corvallis, 2008.²

Entry	Days to Harvest	Shape	Refinement	Row Straightness	Tip Fill	Uniformity			Flavor	Overall Score	Row No.	Notes
						Ear	Maturity	Kernel				
GSS 1477	103	4	3	3	2.5	3	4	2.5	4	3	16-20	Curved ears; somewhat coarse in appearance with uneven kernels; excellent yield
GSS 2259P	112	4.5	3	3.5	3.5	4	3	3.5	4	3.5	18-20	Very late maturing; attractive, uniform ears with good flavor but tough
GSS 7051	105	4	3	3	2.5	3	4	2.5	3.5	3	18	Some curved ears; somewhat coarse, uneven kernels; poor tip fill
GSS 7314	92	4	2.5	3	4	2	3.5	2.5	3.5	3	16-18	Some curved ears; fairly coarse, uneven kernels; good tip fill
GSS 6550P	106	4	3.5	3.5	3.5	4	4	3	4.5	4	16-18	Small, attractive, uniform ears; very good flavor
Supersweet Jubilee	96	4.5	4	3.5	3	3.5	2.5	3.5	5	4	18	Quite variable in maturity; very attractive ears; excellent flavor

²Planted June 26. Scores based on a 1-5 scale with 5 = best. Only those entries from seed companies that requested and paid for quality evaluations are included.

Table 7. Overall root disease ratings of sweet corn hybrids grown at the OSU Botany and Vegetable Research Farms, Corvallis, 2008^z

Entry	Primary root rot (%)	Meso-cotyl root rot (%)	Sign. diff from:		Adventitious root rot (%)	Sign. diff from:		Brown node ^y	Sign. diff from:		Crown rot ^x	Sign. diff from:		Root worm ^w
			Jub	SS		Jub	SS		Jub	SS		Jub	SS	
GSS 2259P	100.0	92.6	*	*	59.8	*	*	1.32	*	*	0.58	*	*	1.61
A08324148	100.0	97.6			75.9	*	*	1.82	*	*	0.98	*	*	1.38
GSS 6550P	98.8	100.0			77.5	*	*	2.70	*		0.81	*	*	1.32
A08735590	100.0	99.9			77.5	*	*	2.41	*	*	0.87	*	*	1.32
A8475418	100.0	100.0			78.2	*	*	2.65	*		1.12	*	*	1.13
GH 6462	99.8	100.0			78.4	*	*	2.24	*	*	1.10	*	*	1.05
GSS 7051	100.0	100.0			79.0	*	*	2.16	*	*	1.04	*	*	1.19
A08735807	100.0	97.4			79.8	*	*	2.32	*	*	0.87	*	*	1.29
A08745919	100.0	97.1			81.0	*		2.49	*	*	0.98	*	*	1.13
GSS 7314	100.0	100.0			81.1	*		2.41	*	*	0.96	*	*	1.32
GSS 1477	99.6	100.0			82.7			2.32	*	*	0.98	*	*	1.44
GH 6377P	99.6	100.0			82.9			1.86	*	*	0.81	*	*	1.18
GH 8267P	100.0	100.0			84.1			2.36	*	*	0.95	*	*	1.30
SS Jubilee	100.0	98.7			84.2			2.91			1.29	*		1.19
A08765591	100.0	100.0			86.7			3.24		*	1.16	*		1.36
Jubilee	100.0	100.0			87.4			3.11			1.45		*	1.30
GH 2171	100.0	100.0			90.9		*	2.07	*	*	1.10	*	*	1.11
GH 4927	100.0	100.0			92.6	*	*	2.99			1.39			1.34
	ns													ns

^zTrials planted June 26. Plants dug and rated October 8. Combined analysis from 2 trials per entry, 4 reps per trial, 3 plants per rep. Least square means calculated because of missing values. * indicates significantly different from the check cultivar at 95% probability level; ns = not statistically significant.

^yNumber of nodes above the soil line with brown discoloration.

^xScale of 0-1.5 with 0=no crown discoloration, 0.5=beginning of discoloration, 1.0 = crown rot present, 1.5=crown rot present with black discoloration.

^wScale of 1-3 with 1=no evidence of feeding, 2=less than 75% adventitious roots with feeding, 3=more than 75% roots with feeding.

Table 8. Root disease ratings of sweet corn hybrids grown at the OSU Botany Farm, Corvallis, 2008².

Entry	Primary root rot (%)	Meso-cotyl root rot (%)	Sign. diff from:		Adventitious root rot (%)	Sign. diff from:		Brown node ^y	Sign. diff from:		Crown rot ^x	Sign. diff from:		Root worm ^w	Sign. diff from:	
			Jub	SS Jub		Jub	SS Jub		Jub	SS Jub		Jub	SS Jub			
GSS 2259P	100.0	90.0	*	*	56.3	*	*	1.42	*	*	0.58	*	*	1.83	*	*
A08735590	100.0	99.9			71.3	*	*	2.58	*	*	0.92	*	*	1.00		
GSS 6550P	98.7	100.0			72.1	*	*	3.00			1.00	*	*	1.00		
A8475418	100.0	100.0			72.9	*	*	2.58	*		1.08	*	*	1.00		
A08324148	100.0	95.8			73.8	*	*	2.00	*	*	1.04	*	*	1.25		
GH 6462	99.6	100.0			75.4	*	*	2.17	*	*	1.13	*	*	1.00		
A08735807	100.0	95.4			75.8	*	*	2.42	*		0.92	*	*	1.00		
A08745919	100.0	100.0			77.5	*		2.67	*		1.08	*	*	1.00		
GSS 1477	99.2	100.0			77.5	*		2.67	*		1.00	*	*	1.00		
GH 6377P	99.2	100.0			81.3			1.83	*	*	0.83	*	*	1.00		
GSS 7051	100.0	100.0			81.3			2.25	*	*	1.13	*	*	1.00		
SS Jubilee	100.0	100.0			83.3			2.75	*		1.33	*		1.00		
GSS 7314	100.0	100.0			83.8			2.17	*	*	1.00	*	*	1.00		
A08765591	100.0	100.0			85.4			3.00			1.17	*	*	1.00		
GH 8267P	100.0	100.0			85.8			2.67	*		1.00	*	*	1.00		
Jubilee	100.0	100.0			87.1			3.33		*	1.46		*	1.00		
GH 2171	100.0	100.0			90.8		*	2.25	*	*	1.38			1.00		
GH 4927	100.0	100.0			92.5		*	2.75	*		1.42			1.00		
	ns															

²Trials planted June 26. Plants dug and rated October 8. Combined analysis from 2 trials per entry, 4 reps per trial, 3 plants per rep. Least square means calculated because of missing values. * indicates significantly different from the check cultivar at 95% probability level; ns = not statistically significant.

^yNumber of nodes above the soil line with brown discoloration.

^xScale of 0-1.5 with 0=no crown discoloration, 0.5=beginning of discoloration, 1.0 = crown rot present, 1.5=crown rot present with black discoloration.

^wScale of 1-3 with 1=no evidence of feeding, 2=less than 75% adventitious roots with feeding, 3=more than 75% roots with feeding.

Table 9. Root disease ratings of sugary sweet corn hybrids grown at the OSU Vegetable Research Farm, Corvallis, 2008^z.

Entry	Primary root rot (%)	Meso-cotyl root rot (%)	Sign. Diff from Jub	Adventitious root rot (%)	Sign. Diff from Jub	Brown node ^y	Sign. Diff from Jub	Crown rot ^x	Sign. Diff from Jub	Root worm ^w	Sign. Diff from Jub
A08324148	100.0	100.0		77.1	*	1.67	*	0.96	*	1.42	
GH 6462	100.0	100.0		80.7		2.33	*	1.13	*	1.00	*
GH 8267P	100.0	100.0		81.3		2.08	*	0.96	*	1.50	
A08735807	100.0	100.0		83.0		2.25	*	0.88	*	1.48	
A8475418	100.0	100.0		83.1		2.75		1.21	*	1.17	
A08745919	100.0	93.2	*	83.3		2.33	*	0.92	*	1.17	
GH 6377P	100.0	100.0		83.4		1.92	*	0.83	*	1.25	
Jubilee	100.0	100.0		86.7		2.92		1.50		1.50	
GH 2171	100.0	100.0		89.2		1.92	*	0.88	*	1.08	*
GH 4927	100.0	100.0		91.7	*	3.25		1.42		1.58	
	ns										

^zTrials planted June 26. Plants dug and rated October 8. Combined analysis from 2 trials per entry, 4 reps per trial, 3 plants per rep. Least square means calculated because of missing values. * indicates significantly different from the check cultivar at 95% probability level; ns = not statistically significant.

^yNumber of nodes above the soil line with brown discoloration.

^xScale of 0-1.5 with 0=no crown discoloration, 0.5=beginning of discoloration, 1.0 = crown rot present, 1.5=crown rot present with black discoloration.

^wScale of 1-3 with 1=no evidence of feeding, 2=less than 75% adventitious roots with feeding, 3=more than 75% roots with feeding.

Table 10. Root disease ratings of supersweet corn hybrids grown at the OSU Vegetable Research Farm, Corvallis, 2008^z.

Entry	Primary root rot (%)	Meso-cotyl root rot (%)	Adventitious root rot (%)	Sign. Diff. from SS Jub	Brown node ^y	Sign. Diff. from SS Jub	Crown rot ^x	Sign. Diff. from SS Jub	Root worm ^w	Sign. Diff. from SS Jub
GSS 2259P	100.0	95.4	62.5	*	1.25	*	0.59	*	1.25	
GSS 7051	100.0	100.0	75.8	*	2.08	*	0.96	*	1.25	
GSS 7314	100.0	100.0	77.5	*	2.67		0.92	*	1.50	
A08735590	100.0	100.0	78.8		2.25	*	0.83	*	1.50	
GSS 6550P	98.9	100.0	82.1		2.42	*	0.63	*	1.50	
SS Jubilee	100.0	97.5	84.2		3.08		1.25		1.25	
A08765591	100.0	100.0	87.1		3.50		1.17		1.58	
GSS 1477	100.0	100.0	87.1		2.00	*	0.96	*	1.75	*
	ns	ns								

^zTrials planted June 26. Plants dug and rated October 8. Combined analysis from 2 trials per entry, 4 reps per trial, 3 plants per rep. Least square means calculated because of missing values. * indicates significantly different from the check cultivar at 95% probability level; ns = not statistically significant.

^yNumber of nodes above the soil line with brown discoloration.

^xScale of 0-1.5 with 0=no crown discoloration, 0.5=beginning of discoloration, 1.0 = crown rot present, 1.5=crown rot present with black discoloration.

^wScale of 1-3 with 1=no evidence of feeding, 2=less than 75% adventitious roots with feeding, 3=more than 75% roots with feeding.

Table 11. Correlation among root disease and yield traits for sweet corn hybrids grown at three locations, Corvallis, Oregon, 2008.²

	Mesocotyl root rot		Adventitious root rot		Brown Node		Crown rot		Root worm		Stand		Gross T/A		Net T/A		Ear Length		Ear Diam		Kernel depth	
Primary root rot	-0.14	ns	0.17	ns	-0.01	ns	0.26	ns	0.14	ns	-0.14	ns	0.07	ns	0.01	ns	0.17	ns	0.03	ns	-0.11	ns
Mesocotyl root rot			0.57	**	0.38	*	0.42	**	-0.18	ns	-0.12	ns	-0.14	ns	-0.13	ns	-0.12	ns	-0.14	ns	-0.17	ns
Adventitious root rot					0.57	**	0.64	***	0.04	ns	-0.08	ns	-0.32	ns	-0.35	*	-0.34	*	-0.37	*	-0.38	*
Brown node							0.67	***	0.10	ns	-0.33	*	-0.52	**	-0.58	**	-0.37	*	-0.68	***	-0.59	***
Crown rot									-0.18	ns	-0.03	ns	-0.27	ns	-0.35	*	-0.09	ns	-0.36	*	-0.35	*
Root worm											-0.15	ns	-0.10	ns	-0.06	ns	-0.07	ns	-0.20	ns	-0.11	ns
Stand													0.56	**	0.52	**	0.15	ns	0.54	**	0.34	*
Gross T/A															0.94	***	0.68	***	0.81	***	0.57	**
Net T/A																	0.63	***	0.86	***	0.69	***
Ear Length																			0.58	**	0.34	*
Ear Diam																					0.79	***

²Significantly different at: * = 95%, ** = 99% and *** = >99.9% probability levels. ns = not significant.

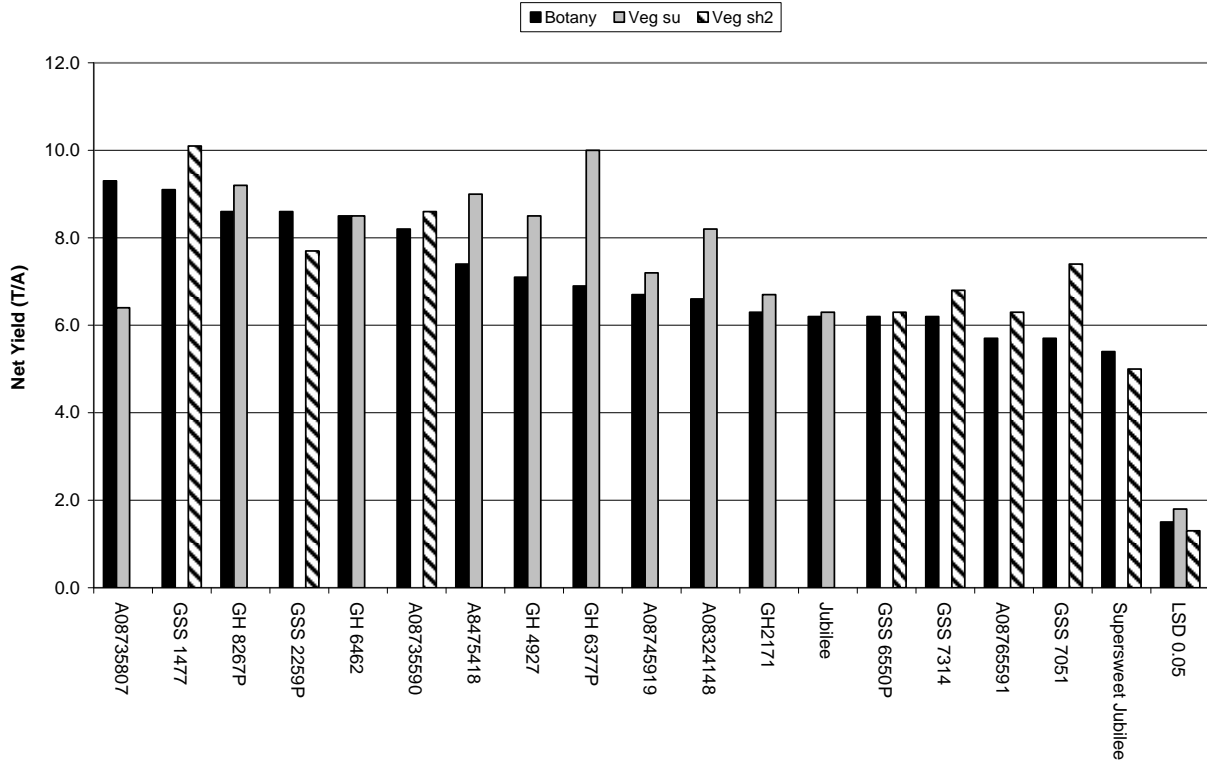


Figure 1. Net yield for sweet corn hybrids grown at 3 locations, Corvallis, Oregon, 2008. Supersweet and sugary hybrids were grown together at the Botany Farm.

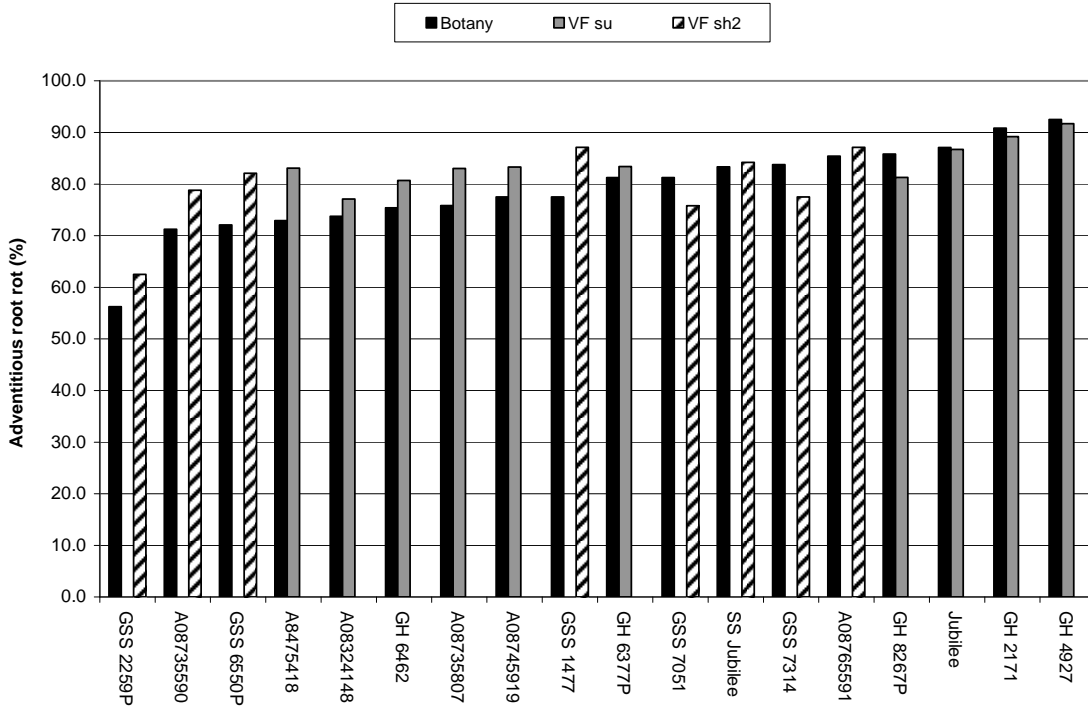


Figure 2. Adventitious root rot of sweet corn hybrids grown at three locations, Corvallis, Oregon, 2008. Botany = Botany Farm with both supersweet and sugary hybrids; Veg su = Vegetable Farm sugary trial; Veg sh2 = Vegetable Farm supersweet trial.

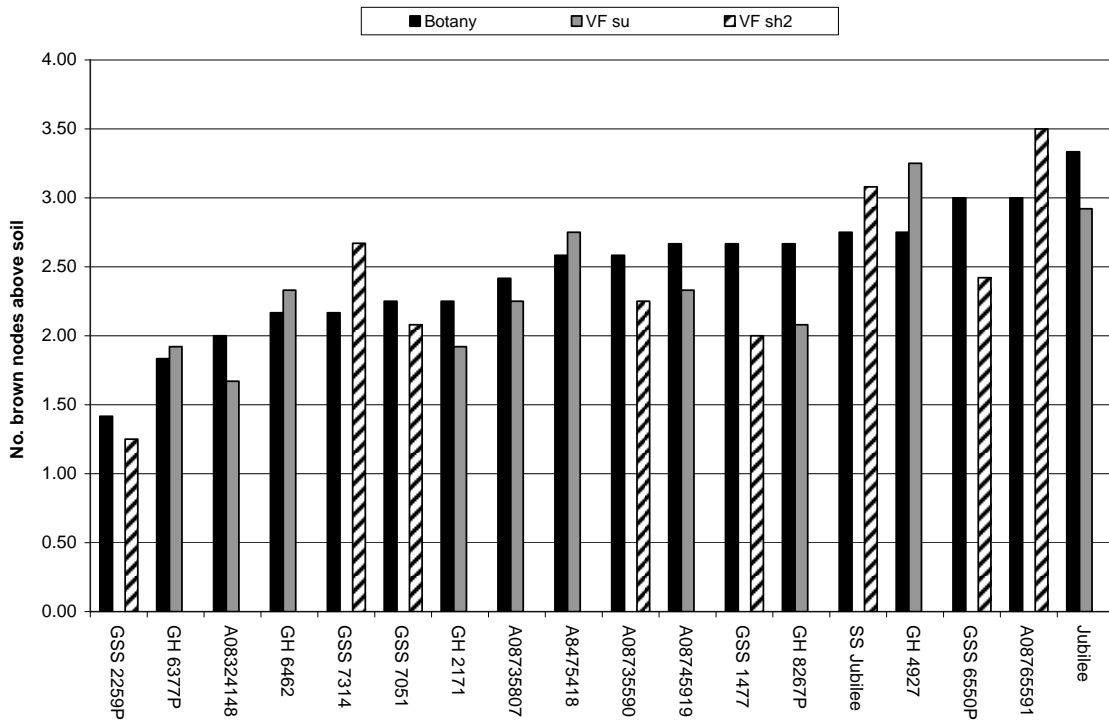


Figure 3. Number of nodes above soil line with internal browning for sweet corn hybrids grown at three locations, Corvallis, Oregon, 2008. Botany=Botany Farm with both su and sh2 hybrids; Vegsu=Vegetable Farm su trial; Vegsh2=Vegetable Farm sh2 trial.

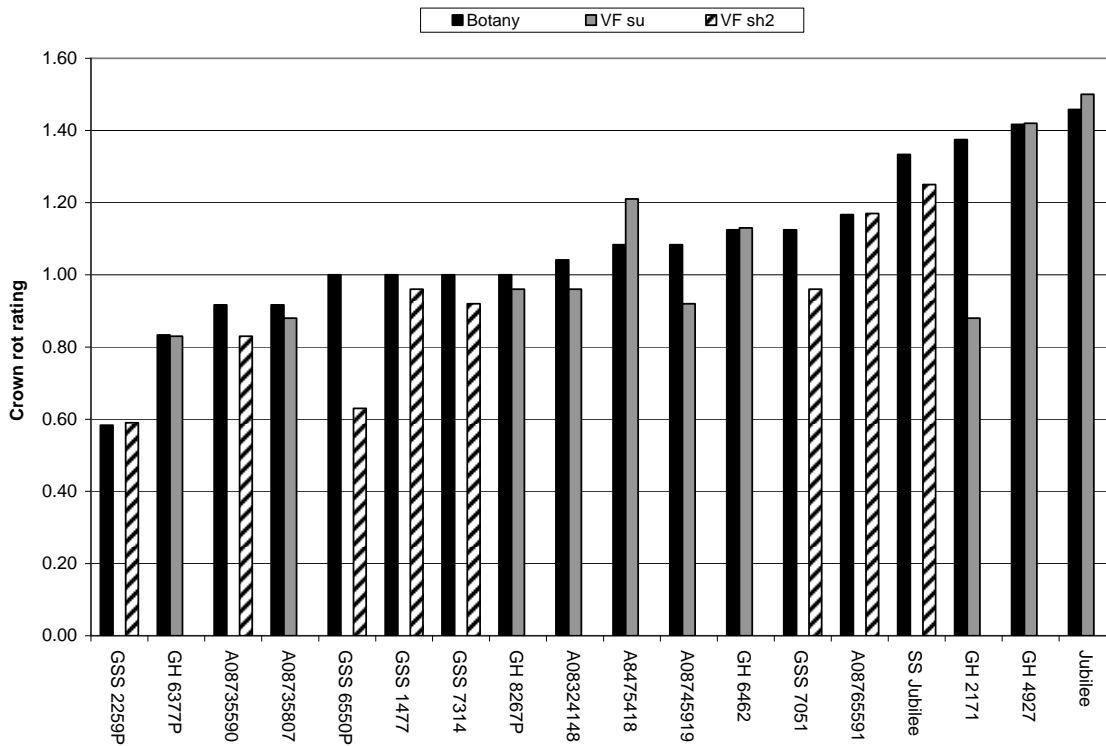


Figure 4. Crown rot rating for sweet corn hybrids grown at three locations, Corvallis, Oregon, 2008. Botany = Botany Farm with both supersweet and sugary hybrids; Veg su = Vegetable Farm sugary trial; Veg sh2 = Vegetable Farm supersweet trial.