



# University of Minnesota

## Grape Breeding Program Annual Report 1997

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### Grape Crosses

The crosses made in 1997 are listed in Table 1. The number of seedlings resulting from each cross is shown as well as the number of seeds. Most red wine crosses were intercroses of U of M selections. Some crosses involved the low acid varieties Gagarin Blue from Russia and Eger 2 from Hungary. Others included either Cabernet or Merlot or their descendents, MN 1180 and MN 1204. White wine crosses made heavy use of the promising selections MN 1166 and MN 1198. Substantially more table grape crosses were made in 1997 than in most years, resulting in over 700 table grape seedlings. Quality parents included: Seneca, Steuben, New York Muscat and Swenson Red.

### New Selections

#### MN 1208 (MN 1129 X MN 1131)

MN 1208 is the first selection to be made from a cross of two sister seedlings, MN 1129 and MN 1131. Both MN1129 and MN 1131 are crosses of *V. riparia* X Seyval. In the first generation from the wild such seedlings are all black, but in the second generation whites begin to reappear. MN 1208 appears to be a very cold hardy, early ripening white wine type. It was picked on Sept. 15 at 22.4 brix and 1.68 % t.a. This acidity level is quite high and should be substantially lower in a warmer year. The flavor of MN 1208 was described as "mild apple and pear" and rated as good quality without herbaceousness. The clusters were small and well filled with small berries. The vine had moderate leaf phylloxera and slight powdery mildew.

#### MN 1209 (Siegerrebe X MN 1130 [*V. riparia* X Canadice])

For many years Siegerrebe has performed well in our *V. vinifera* trials. MN 1209 is part of an attempt to create a hardier version of this grape. Like Siegerrebe., MN 1209 has a pink berry and a muscat flavor. The acidity of MN 1209 is substantially higher, as is its cold hardiness. In 1997 MN 1209 was rated as having moderate powdery mildew and leaf phylloxera susceptibility and slight downy mildew. The vine of MN 1209 is quite small and it may benefit from grafting.

#### MN 1210 (MN 1117 [MN 1069 X Seyval] X Frontenac)

MN 1210 was a very impressive vine in 1997. Its large black clusters with oval berries were well distributed throughout the large, open vine. Disease was minimal. Winter hardiness was good in '96-'97, but the vine was heavily damaged the previous year, perhaps due to overcropping. MN 1210 appears to be fairly late ripening.

#### MN 1211 (MN 1094 X Ravat 262 [S 8365 X Pinot noir])

1211 is another large, impressive vine. While vigorous, the growth habit is not as disorderly as many other vigorous vines descended from *V. riparia*. Clusters were medium-large (122.2 gms) and well filled with small-medium black berries. The foliage was quite clean with only minimal disease. MN 1211 was one of the heaviest yielding selections in '97, with one vine producing over 19 lbs of fruit. The acidity was a bit high at 1.48% with a sugar level of 23.1 brix and a pH of 3.03. MN 1211 ripens early midseason. The wine is quite promising with good color and tannin and a cherry aroma.

**MN 1212** (St. Pepin X E.S. XXX)

MN 1212 is a sister seedling of MN 1166, one of our more promising whites. It is early ripening with a pronounced muscat flavor. MN 1212 was selected primarily for use in breeding. In 1997 it had severe foliar phylloxera and was attacked by wasps (a common problem with aromatic muscat types).

**MN 1213** (Swenson Red X MN 1135 [Valiant X Ark. 1844])

MN 1213 is a promising black table grape. While only partially seedless, this grape has a meaty texture and a thin adherent skin. The flavor is mildly fruity. In 1997 the vine had slight phylloxera and downy mildew.

**MN 1214** (Frontenac X Cabernet sauvignon)

MN 1214 was selected as a breeding parent despite having only a very small crop. The reason it was selected was because of its high level of tannins and a taste resembling Cabernet. It may be worth testing further south. The vine had slight powdery mildew and phylloxera in '97.

**MN 1215** (MN 1118 [MN 1069 X Seyval] X Frontenac)

This exceptional vine was planted in the vineyard in 1996 and selected in 1997 in only its "second leaf". A white wine type, MN 1215 was picked on September 18 with a sugar level of 22.2 brix, 1.10% t.a., and 3.14 pH. The flavor was similar to Seyval but with honey overtones. The foliage was quite clean and the vine had moderate vigor with an open growth habit.

**MN 1216** (MN 1069 X Seyval)

This red wine type exhibited a number of positive traits. It had a high yield (18.5 lbs), good sugar and acid levels (22.4 brix, 1.05 % t.a.), good disease resistance, and excellent wood ripening. Unfortunately, MN 1216 may be a female vine, which would substantially limit its potential usefulness.

**MN 1217** (*V. riparia* X Cabernet Sauvignon)

One of the goals of our project is to develop a variety that makes a big, tannic red wine when grown in Minnesota. MN 1217 was selected as a parent in breeding such varieties. While its acidity is probably too high to be released on its own (1.67% in '97), it will be used in further breeding. MN 1217 appears to be quite cold hardy and productive, with long loose clusters and small black berries. Foliar phylloxera was rated as moderate to severe.

**MN 1218** (MN 1027 X Frontenac)

This white wine selection had been a watch for several years. It has a small cluster (mean = 65.3 gms), but good flavor. In 1997 it was picked at 22.2 brix with an acidity of 1.15%. Cold hardiness appears to be quite good.

**Performance of Existing Selections**

The harvest data for U of M selections is given in Table 2. The coolness of the growing season kept the acid levels fairly high on many selections. Despite the high acidities, all U of M selections reached at least 20 brix.

Some of the most favorable white wine brix, acid, and pH numbers were achieved by MN 1142 (23.6, .93%, 3.12), MN 1163 (21.6, .94%, 3.36) and MN 1186 (24.3, .99%, 3.18). MN 1142 and MN 1163 are sister seedlings descended from Frontenac. Both make good quality wine but have somewhat small clusters. MN 1186 is also a Frontenac seedling, in this case crossed with Chardonnay. Unfortunately, MN 1186 is

not reliably hardy in Minnesota. MN 1197 (yet another Frontenac seedling) was the best performing white wine selection in the vineyard, but its acidity of 1.34% was somewhat high.

Red wine selections with particularly good harvest quality numbers included: MN 1200 (21.3, .96%, 3.09), MN 1216 (22.4, 1.05%, 3.11) and MN 1180 (27.2, 1.11%, 3.39). MN 1180 has been an outstanding vine in terms of wine quality for several years, and 1997 was no exception. However, the small clusters of 1180 lower its yield potential and make picking difficult. MN 1200 seems to have a combination of very high cold hardiness, good disease resistance, and consistently favorable harvest parameters. The wine of MN 1200 is somewhat dark with a cassis aroma and a moderate tannin level, higher than most hybrid varieties. MN 1216 is a new selection described above. In '97 it had both a high yield and a reasonable acidity. MN 1131 had a slightly higher acid level (1.17%) but performed quite well again in 1997. It is currently on the list of selections that are being considered for eventual introduction.

# 1997 U of M GRAPE CROSSES

Table 1

CROSS	FEMALE PARENT	MALE PARENT	SEED #	VINE#	11/1/98
9701	MN 1178	Merlot	377	34	10
9702	MN 1178	Gagarin Blue	246	67	19
9703	MN 1178	Eger 2	172	89	58
9704	Cabernet Sauvignon	MN 1092	39	GH	
9705	Cabernet Sauvignon	MN 1200	42	GH	
9706	MN 1060	MN 1200	423	101	80
9707	MN 1200	MN 1207	449	103	72
9708	MN 1200	Frontenac	226	80	39
9709	MN 1180	MN 1200	105	60	45
9710	MN 1204	Frontenac	241	101	67
9711	Eger 2	Frontenac	114	60	39
9712	Frontenac	Gagarin Blue	0	0	0
9713	Frontenac	MN 1177	204	116	72
9714	St. Croix	MN 1177	75	83	47
9715	St. Croix	MN 1204	0	0	0
9716	MN 1177	MN 1207	235	63	42
9717	MN 1207	MN 1180	0	0	0
9718	MN 1207	MN 1204	0	0	0
9719	MN 1131	MN 1204	516	125	100
9720	Millot	MN 1050	85	22	14
9721	Millot	MN 1158	78	30	18
<b>Red Wine Total:</b>			<b>3627</b>	<b>1134</b>	<b>722</b>
9722	MN 1163	MN 1198	59	19	15
9723	(27 X 47)	MN 1198	168	106	67
9724	MN 1142	MN 1198	0	0	0
9725	MN 1198	DMP 26-50	168	63	49
9726	MN 1198	MN 1188	197	52	39
9727	MN 1166	MN 1198	238	99	66
9728	MN 1106	MN 1166	150	39	19
9729	MN 1188	MN 1166	477	120	55
9730	Chardonnay	MN 1188	34	13	4
9731	Chardonnay	MN 1092	145	49	18
9732	Chardonnay	MN 1177	0	0	0
9733	Chardonnay	MN 1198	36	12	4
9734	Riesling	MN 1198	33	8	4
9735	Ravat 34	MN 1197	0	0	0
<b>White Wine Total:</b>			<b>1705</b>	<b>580</b>	<b>340</b>

CROSS	FEMALE PARENT	MALE PARENT	SEED #	VINE#	11/1/98
9736	Seneca	Reliance	123	65	44
9737	Seneca	MN 1205	180	78	30
9738	NY Muscat	MN 1205	93	31	18
9739	MN 1205	MN 1198	263	109	80
9740	MN 1205	MN 1202	397	79	39
9741	Swenson Red	MN 1205	140	29	13
9742	Steuben	MN 1202	253	44	22
9743	Steuben	MN 1203	198	58	29
9744	MN 1202	MN 1198	200	49	31
9745	MN 1202	MN 1205	0	0	0
9746	MN 1203	MN 1202	7	0	3
9747	ES 4-8-33	MN 1203	172	98	56
9748	ES 4-8-33	Suffolk Red	131	?	0
9749	ES 4-8-33	ES 3-20-36	188	90	55
<b>Table Grape Total:</b>			<b>2345</b>	<b>730</b>	<b>420</b>

## 1997 U of M HRC Harvest Data, Selections

*Table 2*

Selection	Type*	Parentage	Pick Date	Brix	pH	Acid %	Yield (Kg)
1060	rw	(Riparia X L4511)	24-Sep	21.3	2.95	1.51	6.17
1086	rw/j	(1019 X Kay Gray)	16-Oct	22.5	2.99	1.35	10.11
1095	rw	(Riparia X Veeblanc)	10-Oct	26.8	3.14	1.31	n/a
1108	rw	(1051 X Frontenac)	24-Sep	22.8	3.03	1.71	5.29
1131	rw	(Riparia X Seyval)	18-Sep	24.8	3.04	1.17	3.07
1138	rw	(Frontenac X Merlot)	15-Sep	21.8	2.83	1.78	1.76
1142	ww	(1027 X Frontenac)	22-Sep	23.6	3.12	0.93	2.78
1143	ww	(Frontenac X Zaria)	22-Sep	22.3	3.09	1.34	1.57
1144	ww	(1061 X Aris)	18-Sep	23.5	3.12	1.16	3.82
1149	rw	(1027 X Frontenac)	17-Sep	21.3	2.94	1.72	8.36
1163	ww	(1027 X Frontenac)	16-Sep	21.6	3.36	0.94	6.11
1166	ww	(St. Pepin X ES 6-8-25)	30-Sep	22.3	3.07	1.37	6.51
1180	rw	(1045 X 1070)	30-Sep	27.2	3.39	1.11	1.92
1186	ww	(Chard X Frontenac)	18-Sep	24.3	3.18	0.99	n/a
1191	ww	(Aris X DMP 3-25)	29-Sep	23.2	3.17	1.16	3.09
1196	rt	(St Pepin X ES 6-6-11)	15-Oct	20.6	3.25	0.53	1.64
1197	ww	(1022 X Frontenac)	17-Sep	20.8	2.93	1.34	7.91
1198	ww	(1110 X 1117)	2-Oct	23.6	2.95	1.42	7.41
1200	rw	(1057 X L 4511)	15-Sep	21.3	3.09	0.96	5.91
1204	rw	(Riparia X Merlot)	15-Sep	23.8	2.89	1.68	2.64
1208	ww	(1129 X 1131)	15-Sep	22.4	2.89	1.61	3.32
1211	rw	(1094 X Ravat 262)	18-Sep	23.1	3.03	1.48	8.72
1215	ww	(1118 X Frontenac)	18-Sep	22.2	3.14	1.52	1.42

1216	rw	(1069 X Seyval)	28-Sep	22.4	3.11	1.05	8.41
1217	rw	(Riparia X Cabernet)	28-Sep	23.8	2.99	1.67	5.04
1218	ww	(1027 X Frontenac)	17-Sep	22.2	3.11	1.15	4.78

\* *rw* = red wine    *ww* = white wine    *rt* = red table    *j* = juice

## 1997 U of M HRC Harvest Data, Varieties

Table 2

Variety	Type*	Pick Date	Brix	pH	% Acid
Aligote	ww	25-Sep	19.1	3.4	0.92
Aris	ww	14-Oct	21.6	3.06	0.84
Bianca	ww	25-Sep	20.3	3.45	0.77
Cab Franc	rw	25-Sep	17.9	3.21	1.28
Cab Sauvignon	rw	25-Sep	19.1	3.31	0.92
Cab Sauvignon	rw	13-Oct	20.1	3.12	0.92
Carmine	rw	25-Sep	16.3	3.26	1.43
Chardonnay	ww	25-Sep	19.8	3.46	0.98
Gamay Beaujolais	rw	25-Sep	20.4	3.42	1.27
GM 6495-3	ww	25-Sep	20.6	3.31	0.78
Gruner Veltliner	ww	25-Sep	20.3	3.5	0.57
Isaura	ww	25-Sep	18.4	3.31	0.85
Leinor White	ww	25-Sep	16.2	3.58	0.41
Merlot	rw	25-Sep	19.9	3.51	0.74
Merlot	rw	13-Oct	21.1	3.23	0.84
Muller Thurgau	ww	25-Sep	18.1	3.67	0.56
Muscat Ottonel	ww	25-Sep	18.7	3.63	0.69
Ortega	ww	25-Sep	18.9	3.76	0.61
Perle	ww	25-Sep	18.6	4.02	0.39
Phoenix	ww	25-Sep	16.6	3.42	0.85
Pinot Gris	ww	25-Sep	20.4	3.48	0.79
Pinot Noir	rw	25-Sep	19.3	3.59	0.86
Regent	rw	25-Sep	20.7	3.43	0.91
Riesling	ww	25-Sep	19.1	3.14	1.05
Sirius	ww	25-Sep	19.2	3.31	0.69
St. Croix	rw	15-Oct	26.5	3.14	0.77
St. Pepin	ww	15-Oct	22.4	2.98	0.87
VB 86-2	rw	25-Sep	20.9	3.64	0.77
VB 86-4	rw	25-Sep	22.4	3.59	0.69
VB 86-5	ww	25-Sep	19.6	3.43	0.75
VB 86-6	ww	25-Sep	21.4	3.67	0.56
Vignoles	ww	14-Oct	25.9	2.94	1.38
Viognier	ww	25-Sep	18.8	3.32	0.99