GRAPE (Vitis vinifera and interspecific hybrids)
Powdery mildew; Uncinula necator
Downy mildew; Plasmopara viticola
Angular leaf scorch; Pseudopezicula tetraspora
Black rot; Guignardia bidwellii
Phomopsis leaf spot; Phomopsis viticola

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Evaluation of disease susceptibility of two 'new' cold-hardy wine grapes, 2004.

This trial was conducted in a commercial vineyard in the Champlain Valley of Vermont planted with cold hardy interspecific hybrids from the University of MN and a WI private breeding program along with more standard wine grape cultivars. Vines were planted in 1999 and 2001, spaced at either 2.4 x 1.8 m or 2.4 x 2.4 m, cordon trained, and hand pruned. No fungicides were applied during the growing season so that the full potential of disease susceptibility could be evaluated. Rainfall for May, June, July, Aug and Sep was 21.9, 12.3, 23.3, 22.3, 11.3 cm, respectively. Disease incidence and severity were rated on 25 leaves randomly selected on 3 Sep from 3-vine plots arranged in a completely randomized design with 4 replications; 10 clusters per plot were evaluated on 15 Sep.

Weather conditions were very favorable for disease development. 'Frontenac' and 'St. Croix' were similar in their foliar disease susceptibility, with the exception that 'Frontenac' was more susceptible to powdery mildew and was comparable to 'Leon Millot'. Both 'Frontenac' and 'St. Croix' had significantly less downy mildew but greater angular leaf scorch than 'Leon Millot' and 'Riesling'. There were no significant differences in black rot incidence or severity among the cultivars. In addition, no Phomopsis leaf spots were observed on any of the cultivars. Because of the extent of disease on clusters, only the combined total area infected was rated. Again, 'Frontenac' and 'St. Croix' were similar and had significantly less cluster area infected than 'Leon Millot' and 'Riesling'.

	Leaves*								Clusters*
	Powdery mildew		Downy mildew		Angular leaf scorch		Black rot		% Total
	%	% Area	%	% Area	%	% Area	%	% Area	area
Cultivar	Incidence	infected	Incidence	infected	Incidence	infected	Incidence	infected	infected**
Frontenac	66.0 b	30.40 b	2.0 c	0.05 c	30.0 a	2.76 a	23.0 a	1.31 a	19.10 c
Leon									
Millot	79.0 b	41.34 b	99.0 a	65.38 a	0.0 b	0.00 b	8.0 a	0.73 a	55.94 b
Riesling	100.0 a	90.42 a	70.0 b	9.68 b	0.0 b	0.00 b	7.0 a	0.16 a	92.07 a
St. Croix	27.0 c	2.16 c	0.0 c	0.00 c	34.0 a	2.90 a	23.0 a	1.34 a	24.61 c

*Values represent the means of 4 replicate plots per cultivar from 25 leaves or 10 clusters per plot. Disease severity (area infected) was rated using the Horsfall-Barrett scale and converted to percentages using the Elanco conversion tables. Data were transformed using the arcsin sqrt transformation before statistical analysis. Means followed by the same letters within columns are not significantly different according to Tukey's Studentized Range (HSD) Test ($P \le 0.05$).

**Data represent the combined cluster area infected by the diseases.