

NNY Agricultural Development Program 2006-2007 Project Report

Cold Hardy Willsboro Wine Grape Cultivar Trial - Stage Two

Project Leader(s): Kevin Iungerman, CCE Northeast NY Commercial Fruit Program.

Collaborator(s):

Grape Growers and Extension Associations of CCE's NENY Commercial Fruit Program (Albany, Clinton, Essex, Saratoga, Washington Counties), The Lake Champlain Grape Growers Association, The Cornell Willsboro E.V. Baker Farm; Steven Lerch, Cornell Grape Program, Geneva; Ben Gavitt, Cornell Wine Analytical Lab, Geneva.

Cooperating Producers:

<u>County</u>	<u>Producer</u>	<u>Farm/Vineyard</u>	<u>City/Town</u>	<u>State</u>
Albany	Mike DiCrescenzo	Altamont Vineyard	Altamont	NY
Clinton	Phil Favreau	Stone House Vineyard	Mooers	NY
Clinton	Richard Lamoy	Lamoy Vineyard	Morrisonville	NY
Clinton	Rob McDowell	Purple Gate Vineyard	Plattsburgh	NY
Essex	William & Kathryn Reinhardt	Blue Stone Vineyards	Willsboro	NY
Essex	Libby Treadwell	Bessboro Farm	Westport	NY
Saratoga	Michael Spiak	Kayaderosseras Vineyard	Greenfield Center	NY
Washington	Paul Dallemagne	Mountain View Winery	Cambridge	NY
Washington	Kenneth Denberg	Natural Selection Farm	Cambridge	NY
Washington	Andrew Farmer	Slyboro Cidery, Hicks Orchard and Northeast Vine Supply	Granville Poultney	NY VT
Orange	Ed Lincoln	Maple Gate Farm	Randolph	VT
Windsor	Robert Stevens	BowVineyard	Weathersfield	VT

Background:

The Willsboro Grape project succeeded in establishing a unique, 300-vine vineyard trial of 25 cold-hardy-wine-grape-cultivar prospects with the help of private and land-grant collaborators and also the NYFVI and NNADP funding assistance.

Planted in 2005, vine performance differences were extensive in the first year, not because of site or climate factors, but because of initial vine variability. These differences arose as a result of challenging procurement issues: the uniqueness of the vines; the many varied nurseries providing vines; the different planting forms available (bare root, softwood cuttings, grafts, plugs) and their requisite multiple planting dates; and delayed order placement stemming from uncertainty surrounding funding support and the cooperative consultative process of establishing the trial.

Despite these initial obstacles, the trial was put in place in record-time (comparable to similar evaluative trials) and in 2006; growth performance and vine pruning and training practices largely leveled initial differences. Small amounts of crop were carried to ensure that overall vine acclimation would not be compromised going into the 2006-2007 dormant period. Retained crop was utilized for purposes of identification, and also grower education and tasting.

Overall, vines were in very good condition in late fall of 2006, and it was hoped that typical winter conditions would afford a fair comparison of winter acclimation and subsequent growth and survival performance going into the 2007 growing season. Such was not the case. In point of fact, winter climatic factors since our 2005 planting have not provided sufficient stresses to evoke distinct adaptive plant responses. Contrary to expectations, virtually all of the grapes in the trial did quite well and virtually all of the cultivars produced fruit.

In 2007, differences in crop load and quality were noted, and these will serve as a basis of comparison in 2008 when more selective pruning practices (cluster thinning, cane placement and removal) will be carried out on the by then mature vines. Beginning in mid-August, weekly tasting and brix readings were initiated, and periodic juice sample evaluations also. These practices helped to establish a relative maturity sequence, which sets the stage for full cropping and finished wines during 2008.

The fall 2007 acclimation period was outstanding, superior to 2006, and indeed this was the case across all of NY. Once more, it is hoped that rather extreme - but historically normal - winter temperatures will occur over the 2007-2008 dormant season. Otherwise, mild winters may markedly undermine one major purpose of this trial, namely establishing the relative cold hardiness merits of the different vines being evaluated for our regional conditions.

Methods:

At several points in the spring, information on dormancy, bud break, cane growth, and cluster growth were noted across the different cultivars using the Eichorn-Lorenz Growth Stages format as guides. Vine mortality, and incidence of blank versus live buds was noted. These exercises provided an approximation of the relative mortality and overwintering outcomes for the different vines. Cane prunings weights were also collected on two replications in connection with dormant pruning, and this effort suggested their prior season vigor and growth as reflected by 2006 wood production.

Over the course of the growing season, these and all normal horticultural practices required to maintain the vines was carried out as follows: Eichorn-Lorenz Growth Stage evaluations: Iungerman. Basic vine tying, pruning, and training: researchers (i.e. Iungerman and Lerch) and volunteers. Cane pruning weights: Iungerman and Lerch. Vine health (pest, and growth

condition monitoring, pesticide applications):Lungerman. Crop protection (bird netting): Researchers and volunteers. Grape maturity progression from mid-August into early September (weekly evaluation of veraison and brix): Lungerman, local grower Will Reinhardt. Harvest of grapes: Researchers and volunteers. Grape berry samples: Researchers and volunteers. Grape juice sample preparation and shipping: Lungerman. Juice sample analysis: Ben Gavitt, Cornell Wine Analysis Lab. Recording of data and preliminary summary: Lungerman.

Results:

The 2007 growing season did disclose comparative differences of harvest dates, field brix levels, yield, berry weights, and information about juice sample brix, ph, and titratable acidity values for most of the grapes in the trial. Because of costs, and coordination of volunteer labor, juice samples were not taken on all cultivars. A table summarizing this information is attached. (See the appended table: "Willsboro Wine Grape Trial - 2007. Preliminary Field Information".)

The information presented in the table is regarded as preliminary because final crop load management was not engaged in 2007, as full cropping was not intended, and relative harvest timing was still being worked out for the site. Both aspects are expected to impact final results overall when applied in 2008, Still, we can see that harvests began on September 8 and extended until September 29, and indications of Brix readings and fall conditions suggests some grapes could have hung longer. Yields, on the basis of 12 vines totals, suggest that productivity differences will be important, as they ranged from 15.6 to 186 kg. However, final grape quality, value for wine, and demand, will also play a final assessment role, particularly as more selective crop load management and maturity evaluation mediate results.

Conclusions/Outcomes/Impacts:

Though cumulative winters (2005-2006; 2006-2007) haven't leveled the field as much as was hoped, we are filling-in much of the information void that existed previously about hardy hybrid grapes in this region. We are thereby moving from anecdotal lore to much more credible information as it is based upon side-by-side comparisons of many cultivars grown at a single site right here in this region.

What's more, local and regional grape enthusiasts are not only learning about different grapes, they are learning more about vineyard management and wine making needs. Notably, the site and process are fully accessible. People are learning by seeing, doing, and tasting. A number of our volunteers - from Albany, Clinton, Essex, Saratoga, and Washington counties, and one person in Vermont - are conducting adjunct wine making trials with this season's production run-up to the 2008-cropping year.

Serendipitously, in 2007, we seem to have hit upon a novel way for dramatically reducing conventional weed control measures in young vineyards, and having participants regularly on the spot went a long way toward convincing folks of its utility.

Our weed control regimen involved a combination of raised-bed and the use of plastic mulch at planting, and alley mowing and weed-whipping missed edges. In 2007, we choose instead to arrest vegetation between the mulch and the mowed alley via a single roundup application when the vegetation edge was approximately 7- 15 inches high. Subsequent alley mowing discharges

aided in toppling the killed grass over on to the mulch; there, together with the mower clippings, this comprised a further plant-based mulch atop the plastic, and so shaded the plastic, screening it from exposure to ultraviolet light and photo-degradation. The end result is that the preplant plastic from 2005 was still functioning as an effective weed control through 2007, and likely will into 2008. (See accompanying photo.)

Outreach:

Regular volunteers, and also particular-event sequence visitors, participated throughout the season via the "working" seminars, when we tackled spring pruning and training, and later, shoot positioning, tying, and then crop evaluation and maturity onset, the pre-emptive application of bird netting for crop protection, and finally the series of berry sampling in connection with harvest characterization, juice sample preparation, and finally, the series of different cultivar harvests.

After weighing of crop, each harvest was divided among the volunteers, and seven cooperators planned to make wine from the grapes for a follow-up tasting and evaluation session to be announced early in 2008. In all, eleven group "working" seminar sessions were coordinated in support of both the trial and in support of viticulture skill development, and in generally responding to participant questions regarding the activity, or more broadly related questions. Thirteen cooperator volunteers formed the backbone for the "working seminars", and another 18 persons attended and assisted at various times.

Separately, the Statewide Extension Viticulture Program inaugurated a series of telecom distance-learning sessions for winemaking in June and July of 2007. One successfully registered class was in Westport, Essex County, and it was nearly exclusively composed of volunteers with the Willsboro Wine Grape Trial. The information broadened the interest and support for allied educational and cooperative ventures.

Early in 2008, a follow-up planning meeting is envisioned to look ahead to 2008 needs and supportive programming, including education, demonstration, and vineyard and winery visits. We will also gather the "adjunct" wines and wine makers together for a review and taste of the 2007 season - and its winemaking legacy.

Next steps:

Next year we will shift to more rigorous crop and cluster care in anticipation of the finished wines to be made under the auspices of the Cornell Wine Lab. Minimally, the Wine Lab will make five finished wines. Additionally, as in 2007, but more extensively, local and regional wine makers will also make wine from the 2008 harvest. The project was been fortunate to have had the support of a half-dozen stalwart volunteers, particularly over the course of numerous weekend afternoons during the harvests of September and October 2007. We will work to continue this partnership.

All of the efforts as included in the "Measures" section above will be repeated in 2008, so that cumulative findings can provide base-line information profiles for the different cultivars over the course of this trial. This information will pertain to flowering onset, berry and cluster formation

incidence, and maturity and yield component indices (via limited, sequenced weekly berry sampling and development evaluation in August and September). The hiring of an on-site, part-time seasonal assistant in 2008 will greatly enhance this task in 2008. It will also allow the project leader to expand and coordinate related on- and off-site learning activities supportive of further viticultural practices skill development.

All of this cumulative information will be available for correlation with degree-day and weather records, and contrasting observations on bud break and survival, vigor, and other measures.

Acknowledgments:

In closing, my thanks once again, to Steve Lerch, Cornell Grape Program, Geneva; Mike Davis and the Cornell Willsboro Baker Farm Staff; the Lake Champlain Grape Growers Association, volunteers Richard LaMoy, Rob McDowell, Mike Spiak, and a number of others; and Anita Deming, CCE Essex County; who have assisted me in carrying out this year's work at the Willsboro Trial. Thanks too, to the Growers and CCE Extension Associations of CCE's NENY Commercial Fruit Program; CCE; and the Northern New York Agricultural Development Program, who provided the funding support allowing this work to be undertaken.

Reports and/or articles in which the results of this project have already been published.

Iungerman's report to the CORNELL RECENT ADVANCES IN VITICULTURE AND ENOLOGY (CRAVE) CONFERENCE. 2007 PROGRAM THEME: "THIS IS WHAT I DO". November 15, 2007, Cornell Cooperative Extension Ag Inservice, Ramada Inn, Ithaca, NY.

Article in Adirondack Life, September 2007, by Ham Davis, about wine grapes in the Adirondacks, which included information on the Willsboro Trial.

Person(s) to contact for more information:

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Janice & Mark Stainken		Willsboro, NY	JS@Voitra.com

Willsboro Wine Grape Trial - 2007. Preliminary Field Information

Grape Cultivars	Harvest Dates	Brix (Near Harvest)	Yield (kg)	Berry weights (g)	Juice Sample Results pH • TA/ g/L	Brix • g/L
1 Baco	10/13/07	19.0 b	91.1	1.11 j	20.2 h	2.91 19.00
2 Cayuga White	9/29/07	15.5 b	59.3	2.36 j	17.0 h	2.81 11.40
3 Edelweiss	9/14/07	16.0 a	133.8	-	14.9 e	3.10 6.50
4 ES 6 - 16 - 30	9/14/07	13.5 a	78.7	2.45 k	18.4 e	3.00 8.80
5 Foch	9/14/07	21.0 a	61.3	0.97 k	20.3 e	2.97 13.60
6 Frontenac	9/29/07	20.2 b	100.4	1.19 j	22.2 g	3.04 14.50
7 Frontenac Gris	9/29/07	19.5 a	97.2	-	-	- -
8 GR7	9/29/07	19.5 b	102.1	1.13 j	21.7 g	3.11 9.73
9 LaCrescent	9/14/07	16.0 c	58	1.10 k	21.9 e	2.93 15.80
10 LaCrosse	10/13/07	17.0 b	69.9	1.47 j	18.6 f	2.84 11.70
11 Landot	9/29/07	18.0 b	19.4	1.76 j	20.7 g	3.01 9.54
12 Leon Millot	10/14/07	18.0 c	109.4	-	22.5 i	3.15 na
13 Louise Swenson	9/29/07	17.0 b	77.8	2.19 j	18.4 g	3.15 6.69
14 Marquette	9/14/07	20.0 b	55.2	1.66 k	20.8 e	2.97 14.10
15 MN 1200	9/8/07	23.0 a	31.2	0.77	23.3 d	3.05 10.80
16 Niagara	9/29/07	17.2 a	186.0	-	-	- -
17 Noiret	9/22/07	17.4 b	57.6	1.37 j	17.7 f	2.81 13.90
18 NY 76.844.24	9/29/07	16.8 b	73.1	1.50 j	20.8 g	2.83 9.60
19 Petiteamie	9/29/07	18.0 b	15.6	2.00 j	18.1 f	2.95 9.90
20 Prairie Star	9/29/07	18.5 b	91.5	1.34 j	21.7 g	3.36 8.12
21 "Unknown"	10/13/07	11.5 a	80.2	-	-	- -

22	Sabrevois	9/14/07	17.5 a	73.5	1.86 k	17.1 e	2.78	13.50
23	St Croix	9/29/07	17.0 b	86.1	1.80 j	18.6 f	3.14	7.02
24	St. Pepin	9/14/07	22.0 a	46.6	1.67 k	20.2 e	2.92	12.90
25	Vignoles	Nov ?	19.5 b	nya	1.39 j	19.9 f	2.82	17.10

NOTES: Brix readings are relative to harvest date as follow: a) 9/6/07. b) 9/22/07. c) Brix of 8/31/07 use, as it, and reading at harvest indicated likely sampling error on 9/7/07. Juice sample values are related to harvest dates as follows: d) 9/8/07. e) 9/14/07. f) 9/22/07. g) 9/29/07. h) Indicates the final juice values were unavailable at this writing. Juice sample values of 9.22.07 are presented as interim guidance. i) These single results are derived from field determination by a cooperator rather than through the Cornell wine lab test. Berry Weights: j) Indicates weights derived on 9/22/07. k) Weights from 9/14/07. Other: "nya" means not yet available. "- " Indicates juice samples were not taken. Prepared by K. Iungerman, CCE NE NY Fruit Program, 10/18/2007.