Northern NY Agricultural Development Program
2010 Project Report

Cold Hardy Hybrid Wine Grapes:
Cropping, Vigor Management, Wines

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

Collaborators:
Dr. Wayne Wilcox, Cornell Department of Plant Pathology; Dr. Tim Martinson, Cornell Statewide Viticulture Extension Program; Mike Davis, Cornell EV Baker Agricultural Research Farm Manager, Willsboro; Extension Associations and Fruit Growers of CCE's NENY Commercial Fruit Program; Willsboro and NENYF volunteers.

Cooperating Producers: (Includes a list of producers who participated in the project. Lists producers by county.)

County	Producer	Farm/Vineyard	City/Town	State
Washington	Gerry Barnhart	Victoryview Vineyard	Schatigcoke	NY
Albany	Mike DiCrescenzo	Altamont Vineyard	Altamont	NY
Clinton	Jim Doud		Ellenburg	NY
Clinton	Phil Favreau	Stone House Vineyard	Mooers	NY
Clinton	Dave Husband		Peru	NY
Clinton	Richard Lamoy	Hid-in-Pines Vineyard	Morrisonville	NY
Orange	Ed Lincoln	Maple Gate Farm	Randolph	VT
Clinton	Rob McDowell	Purple Gate Vineyard	Plattsburgh	NY
Clinton	Leo Poirier		Ellenburg	NY
Clinton	Ken Racette			NY
Essex	Will & Kathy Reinhardt	Blue Stone Vineyards	Willsboro	NY
Essex	Josh Schwartzberg		Essex	NY
Saratoga	Mike Spiak	Kayaderosseras Vnyrd.	Greenfield Cen.	NY
Essex	Todd Trzaskos	Vermont Logic	(Willsboro Land)	VT
Clinton	Dan Vesco	Vesco Ridge Vnyrd.	West Chazy	NY

Background:

The 2010 season represented the fifth growing year of the Willsboro hybrid cold-hardy-wine-grape Trial, a 300-vine planting of 25 different cultivars. It has had the continuing support of private and also land-grant collaborators. Notable funding support has come from Cornell Extension, the New York Farm Viability Institute (NYFVI), and especially the Northern New York Agricultural Development Program (NNYADP).

For the first three seasons, the vines were minimally maintained to ensure good growth and establishment, not cropping. By 2007 vine maturity and also pruning and training practices largely alleviated vine differences owing to previously cited procurement issues at planting. Cropping in 2006 and 2007 was minimal as the vines were still juvenile; only small token crops were carried for purposes of identification, for grower education, but primarily to foster fall acclimation and enhanced winter survival over 2006-2007 and 2007-2008.

Since planting in 2005, there has been a good deal of seasonal variability. The fall 2007 acclimation period was outstanding, superior to both 2006 and 2009. We had quite a remarkable heat unit accumulation and a historically early start in 2010. In contrast, 2009 had been a markedly cooler growing season than all of our seasons to date, and heat unit accumulation was unfavorable to realizing adequate sugar accumulation and also acid reduction in virtually all the varieties. All of the winters to date have continued to be milder than historical norms, and contrary to expectations, all of the grapes have survived, and most - with a few notable exceptions covered later in this report - have carried considerable crops in 2008, 2009, and again in 2010.

First wine production from Willsboro's grapes began in 2008 at the Cornell Wine Lab at the NYS Food Science Facilities in Geneva, NY. These efforts were targeted to a selected subset of the more promising grape varieties being screened at Willsboro.

In 2008, with the hiring of a part-time seasonal technician, we were able to begin a shift from the purely analytic and skeletal wines that had been made at Geneva in 2008, to a local wine making effort emphasizing a commercial end-product; this began in 2009, and expanded in 2010, largely because we were able to increase the technician support level from 0.25 to 0.5 time.

Apart from greatly aiding our vineyard management needs, and boosting early season phenology and harvest maturity data collection, the additional time allowed us to kick up our local wine making focus. Our technician, Richard Lamoy, ably complemented Kevin Iunerman's overall Willsboro Wine Trial project design and management responsibilities, including annual grant writing and reporting in connection with fund raising to support the work.

In truth, the partnership with a seasonal technician essentially allows the work to continue; particularly as Iungerman's Extension position technically allows just a 0.3 FTE effort for all commercial grape endeavors over the five counties of Cornell University Extension's Northeast NY Fruit Program including the Willsboro grapes.

In 2009, half of our small number of Willsboro wines were being made in Clinton County by Lamoy, and half were being made at the Cornell Wine Lab; in 2010, all of the Willsboro wine grape harvest was directed to wine making efforts locally - with a twist. For both budget need and also outreach impact, we enlisted 10 local wine makers as cooperators for turning the 2010 harvest into a truly participatory learning experiment to see what small batches of commercial product might result apart from Project effort alone.

We have had several public wine tasting and evaluation sessions to date (in 2009, 2010) and will be conducting more extensive reviews in 2011 which will critically review our own and our cooperators' wines. To support this effort, we have scheduled a wine making workshop and also wine sensory evaluation sessions in April 2011, at Kayaderosseras Crest, Greenfield Center, Saratoga County, a very young vineyard aspiring to make its own wines, and also to supply grapes to local commercial wineries.

These two Greenfield Center workshops, to be led by Cornell Enologists Anna Katherine Mansfield and Chris Gerling, are intended to transfer and enhance commercial grade wine making expertise and product analysis, as was a comparable single program in Peru, Clinton County, on March 11, 2011, which they conducted as part of Cornell's outreach support to the growing vineyard and winery sectors in Northern NY.

Apart from Cornell Extension, these wine workshop efforts reflect an active collaboration with the Lake Champlain Wines Association (at Peru) and with the Upper Hudson Valley Wine and Grape Growers Association (for the scheduled Kayaderosseras event). They also will contribute substantially to founding a serious evaluation of local wine making. Early discussions have begun with interested parties for a winemakers roundtable that would periodically meet to taste, discuss, and critique product, with the goal of improving overall quality and in turn, winning consumer acceptance and market share.

To date, locally made Willsboro wines have been made from Marquette, MN 1200, Sabrevois, St. Croix, and Frontenac (reds) and ES 6-16-30, LaCrescent, Petite Amie, NY 76.844.24, Prairie Star, and St. Pepin (whites). In 2010, with the help of cooperators, we will have additional wines made from the WIllsboro grapes, including from Baco, Cayuga White, Edelweiss, Foch, Frontenac Gris, GR7, LaCross, Landot, Leon Millot, Louise Swenson, Niagara, Noiret, "Not Ravat", and Vignoles. (See Table 3.)

2010 Results:

The MN and WI hybrids, and also a number of NY Hybrids, continue to do quite well in our Willsboro Trial; of the former, these include Frontenac, Frontenac Gris, LaCrescent, Louise Swenson, Petite Amie, St. Croix, Marquette, and MN 1200; of the latter group, NY 76.844.24, Noiret, Leon Millot, and Vignoles are holding their own. (See harvest information in Table 1 et. al.).

On the other hand, winter injury, and generally inadequate cropping and wood maturation, are causing declines and/or much under-ripe fruit in Landot (especially), and in the American varieties Cayuga and Niagara. (Again, see Table 1, and especially the live node information in Table 2.) These last three are likely to be removed from the planting in the near future; what has been surprising, is that these varieties have maintained themselves as well as they have; we did not think at our latitude in NY, and our short growing seasons would have allowed their survival at all. Niagara continues to bear substantial crops (if of very low brix), and some may wish to maintain this variety on warmer sites for blending purposes; preferentially, there are better-suited cultivars to our region.

A more extensive canopy management regimen was undertaken in 2010. This involved

contrasting two approaches: cane thinning and then a combination of cane and cluster thinning. As you will see in Table 4, our efforts suggest that combined shoot and cluster thinning can increase cluster mass without necessarily reducing yield. An increase in cluster mass did occur in 20 of the 25 varieties as a result of the combined shoot and cluster thinning. Interestingly, the impact on overall yield in these instances was nearly evenly divided: In 12 instances there was reduced yield; with 9 there was an increase. The varieties whose clusters increased mass follow, with a notation of + or - to indicate yield change relative to shoot thinning alone:

> Baco (-), Cayuga White (-), Foch (-), Frontenac (-), Frontenac Gris (-), LaCrescent (+), LaCrosse (-), Landot (-), Leon Millot (+), Louise Swenson (+), Marquette (+), MN 1200 (-), and Niagara (+), Noiret (+), NY 76 (+), Petite Amie (-) Prarie Star (-), Sabrevois (+), St Croix (-), and Vignoles (+).

Varieties that did not show an increase in cluster mass included Edelweiss, GR 7, ES 6-16-30, Leon Millot, Louise Swenson, St. Pepin, and an "Unknown" in our planting; the latter we refer to "Not Ravat" owing to our discovery that what we thought was Ravat at planting, later produced grapes of the wrong color! (See Table 4 for more details.)

The number of vines between our two treatments differed substantially, by a ratio of 3:1, with 9 vines of each cultivar receiving shoot and cluster thinning and 3 vines receiving just the shoot thinning, so our results are based on small numbers (See Table 4 in the Appendix for all of the 2010 results.)

Going forward, it remains to be seen if we can replicate and even extend our results. We hope to measure berry quality characteristics more closely in 2011; we did not evaluate berry characteristics in the two treatments in 2010.

Though cluster numbers decline, it is thought that better berry maturity characteristics accompany the larger - though less frequent - clusters, providing enhanced price points to offset the somewhat depressed harvest volume; additionally, fewer and larger clusters facilitate more rapid and easier picking, which can tip things favorably through efficient and perhaps less costly harvest labor expenditures.

In 2009 we experienced troubling mammalian predation on a number of vines, which we subsequently attributed to the activities of raccoons and perhaps porcupines. Our perimeter 8-foot high woven wire deer fence (in place since the 2005 planting year) had solved the white tail incursions, and apparently, also the Baker Farm's resident turkeys, but not our small climbing mammals! To hopefully rectify this flaw, we installed a portable seasonal two-strand electric perimeter just outside of the deer fence in 2010; it appears to have indeed solved the problem. The system is effectively powered by a solar charger, which we mounted on a westerly trellis end-post inside the vineyard. (See photos in the attachment).

We also shifted to a new bird netting in 2010, one which was easier to apply and less harsh on the hands. At our field meeting on August 24, aside from reviewing crop conditions, we also showed folks all of our new critter defensive initiatives and demonstrated our grape sprayer, which our technician Richard Lamoy fabricated last year, and which has handled things quite well.

As in 2009, the 2010 disease situation at the Willsboro Trial undoubtedly continued to be disappointing to Cornell Plant pathologist Wayne Wilcox - for all the right reasons! I provide this comment on the basis of Wayne's assessment in 2009 and Tim Martinson's walk through our vines at our August field day. From a pathology standpoint, there was little to see, and the vineyard continued with little disease (or insect) issues. This good situation is not due to an absence of pathogens and pests. Rather, it is close monitoring, and limited but well-timed pesticide applications - particularly fungicides -that continue to provide excellent vine health.

Our IPM program also had the benefit again of the "Grape Boom" sprayer, which Lamoy designed and fashioned from catalog parts and some structural welding in 2009. This was reported on in our year-end report last year, and we demonstrated the sprayer again at our August field meeting in 2010. Growers expressed interest in the sprayer, and one grower (in southern Washington County) independently contracted with Lamoy to purchase a replicate model for his own operation. As we have learned, it works very well for small vineyards.

Area grape producers have looked to the Willsboro IPM program as a model for their vineyard disease and insect situations, and have requested information not only on the sprayer, but also for our IPM record. You can see all of the details on our 2010 spray program, with its focused pests/diseases, the materials used, and the intervention timing in Table 5, which is appended to this report.

As to much of our vineyard operations, and for the wine making as noted, we continue to rely substantially upon our "cadre" of loyal volunteers each year, who aid our annual tasks of vine tying, pruning, and training; with bird netting and removal, with harvests, and with other seasonal tasks. These endeavors have formed the basis for our experiential "working seminars", where we convey a good deal of instruction through "doing"; such side by side interaction also generates "in-process" discussion and practical horticultural skills transfer. Paralleling the wine making outreach results, our periodic field and formal sessions with Cornell Extension and College personnel, and experienced practitioners have buttressed the information flow to new practitioners in Northeastern NY.

2010 Conclusions/Outcomes/Impacts:

- The MN and WI hybrids continue to do quite well, these include Frontenac, Frontenac Gris, LaCrescent, Louise Swenson, Petite Amie, St. Croix, Marquette, and MN 1200; a number of NY Hybrids are also doing well and holding their own; these include NY 76.844.24, Noiret, Leon Millot, and Vignoles.
- A more extensive canopy management regimen, which contrasted cane thinning with a combination of cane and cluster thinning, did improve cluster mass in 19 of the 25 varieties. We hope to measure berry quality characteristics more closely in connection with this work in 2011
- In contrast to the abbreviated 2009 summer and wet, cool autumn, 2010 was unparalleled year for crop maturation - but the two years underscored the potential for great variability as climate shift plays out, and this still underscored the importance of a cultivar's short-season maturation ability.

- Faced with insufficient funds to continue an extensive wine making program with Cornell's Wine Lab, local wine makers indicated an interest in collaborating with the Fruit Program by sharing in the harvest and agreeing to make trial wines for group review. We expect this early effort may mature into an ongoing "producers" roundtable for learning and evaluating local wine quality.
- Close monitoring, and limited but well-timed pesticide applications, particularly fungicides, continue to result in excellent disease control. Area grape producers have looked to the Willsboro IPM program as a model for their operations.

2010 Outreach and Willsboro Volunteer Events:

Apr 3 Sat *- The NENYF Grape Pruning Workshop, with the Upper Hudson Valley Wine and Grape Association, at Victory View Vineyard, Schatigcoke, WA County.*

Apr 23, 24 (Sat) *- The NENYFP Willsboro Grape Trial Dormant Pruning on the 23rd, and Pruning Instruction with volunteers on the 24th, Willsboro.*

Apr 28 *NENYF Videoconference grape season programming discussion with Dr. Tim Martinson, area grape growers and also members of the Upper Hudson Wine and Grape Association and the Lake Champlain Wine Association. (Links to Geneva Experiment Station, and CCE Associations of Saratoga and Clinton.)*

May 22 Sat *- Cooperated in the Lake Champlain Wine Association's Planting Workshop, at Four Maples Vineyard, Champlain, Clinton County*

Jne 29, 30 *- The NENYFP "Using NEWA Weather Data for Apple and Grape Pest Management" Workshop at Clinton and Saratoga CCE Associations, respectively.*

Jly 7 *- NENYFP participation with other agriculture researchers, in providing brief summations of work in progress, Cornell Baker Farm Open House for area public and dignitaries.*

Jly 17 Sat *- Assisted with Richard Lamoy's SARE Grower Grant Research Field Day at his Hid-In-Pines Vineyard, as the SARE Grant's University contact, Morrisonville.*

Aug 13 - *Conducting Shoot and cluster thinning work at the Willsboro Grape Trial.*

Sep 10 *- Coordinated harvest timing and volunteer recruitment for the first Willsboro Harvest. of 3 varieties.*

Aug 24 *- Willsboro* Grape Field Meeting and Wine Tasting, Cornell Baker Farm and Wine Grape Trial with regional grape growers (VT, Upper Hudson region, Champlain, and St. Lawrence) and Tim Martinson of Cornell..

Sep 11 Sat *- First large group harvest at Willsboro trial obtaining cluster counts and yield data on 7 varieties.*

Sep 15 *- Continued the Willsboro Harvest with cluster counts and yield data on St. Pepin.*

Sep 18 Sat *- Conduct the second group harvest at Willsboro, obtaining cluster counts and yield data on an additional 7 varieties.*

Sep 22 *- Willsboro Harvest and cluster counts and yield data on NY 76.844.24.*

Sep 25 Sat *- The third and final group harvest of Willsboro trial, with volunteer help, obtaining cluster counts and yield data on last 6 varieties.*

2010 Next steps if results suggest continued work is needed in the areas of research, demonstration and/or education.

Economically, practical information and demonstrations will need to be stepped up, now that many small new vineyards are beginning to bear fruit. Of particular need are IPM practices, and a disciplined and instructive introduction to good enology practices peculiar to the grapes grown under local and regional conditons. Hand in glove, is the related need to improve viticulture practices of site and cultivar selection, vine training and trellis support, and crop management practices to balance vine and crop need in our typically short-season region.

Acknowledgments:

In closing, my thanks to Our Willsboro Volunteers, and once again, to Richard Lamoy who was an exceptional seasonal colleague; Mike Davis and the Cornell Willsboro Baker Farm Staff; the Willsboro volunteers. 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, which provided the funding support for the seasonal assistance and thus our winemaking effort again at Hid-in-Pines Vineyard.

Reports and/or articles in which the results of this project have already been published.
None at this time.

Person(s) to contact for more information (including farmers who have participated
(All New York State except as may be noted):

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Also see Cold Hardy Hybrid Wine Grapes: Cropping, Vigor Management, Wines Tables and Photos document online at www.nnyagdev.org in the Horticultural Crops section.