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August/September

Volume VIII, Issue 3

Nebraska Vine Lines

*Editors: Dr. Paul Read, Professor of Horticulture & Viticulture
 Donna Michel, University of Nebraska Viticulture Program*

November 11th Workshop: Focus on New Cultivars

Be sure to save the date of November 11th for a stimulating discussion on new grape cultivars. A special speaker will be featured who will provide insights into the features of the Elmer Swenson cultivars, including information about numbered selections being evaluated and considered for possible release. A growers round-table panel will share their experiences with Swenson, University of Minnesota and New York (Cornell) grape cultivars. More details will be forthcoming with regard to this workshop to be held at the University of Nebraska's East Campus Union on November 11, 2006. Save the date!

WOW! It's Been a Hot One.

With most Nebraska vineyards escaping damaging, late Spring cold temperature frost/freeze events, it looked as though we were heading for Nebraska's best grape harvest in modern times. However, the extreme heat of the past several weeks has stressed many vineyards and perhaps depressed what might have been a bumper crop. (One way was heard to say, "Mother Nature giveth with the one hand and taketh away with the other"). In spite of the challenges of this very hot growing season, 'Edelweiss' harvest in eastern Nebraska has been very good, and the prognosis for many cultivars ranges from average to excellent, so it appears that there is reason for an optimistic outlook for Nebraska's grape industry and the 2006 vintage.

A few timely tips and reminders:

- **Do not fertilize vines** this late in the growing season. Late fertilizer application stimulates soft new growth that will be vulnerable to early fall cold damage.
- **Continue irrigating newly established and young vines.** Older vines, especially in eastern Nebraska may have a deep enough root system that exploits stored subsoil moisture sufficiently to withstand the stresses of this heat wave. Western Nebraska vineyards may need to continue irrigating up to harvest, depending on temperatures and rainfall.
- Avoid excessive irrigation. It may cause soft vegetative growth and delay hardening of the canes, again potentially leading to vulnerability to fall cold temperature injury.
- Grow tubes. If using grow tubes on vines planted this year, they should be removed by mid-to-late August. This will enable the young vines to produce periderm ("bark") as they harden to survive Nebraska's potentially damaging fall drops in temperature and low winter temperatures:

We wish you a great harvest and wine-making season.

Paul Read and the University of Nebraska
 Viticulture Program Staff

Faculty Development Leave — Part II

**Paul E. Read, Professor,
University of Nebraska Viticulture Program**

As promised in the last Nebraska Vine Lines, this part of the report on my Faculty Development Leave will focus on the Tasmanian grape and wine industry and my involvement in this rapidly growing and vibrant part of Tasmanian agriculture. Rapid growth has taken place in the last two decades and was a primary factor in my choice of location for my Faculty Development Leave. Equally important was the opportunity presented to work with Dr. Steve Wilson and Dr. Richard Smart. Dr. Wilson, University of Tasmania, was my host at the University of Tasmania (UTAS) and advised and assisted me in my involvement with UTAS educational programs and in developing research projects in Tasmanian vineyards. Dr. Smart co-advises with Dr. Wilson a PhD student, Fioma Chopping, with whom I worked on several projects. I also collaborated with Mark Robertson on experiments that will ultimately become part of his PhD research. Jo Heazlewood was finishing her PhD research and I assisted her with this effort including review and critique of her dissertation. A brief synopsis of each of these three efforts follows.

Fiona Chopping's research is being conducted at Tamar Ridge Winery's vineyards near Launceston. Richard Smart is the primary vineyard consultant for Tamar Ridge and he, Steve Wilson and I helped Fiona Chopping design an experiment that she will use as art of her PhD program. (Tamar Ridge's parent company funds Fiona's Ph.D. stipend.) The project, which I helped establish in the vineyards involved a "source-sink" study on Pinot Noir grapevines. Treatments that I applied included shoot tip removal and secondary cluster removal ("sinks"). Early results observed before I left Tasmania included

vines that were girdled, and stimulation of multiple secondary shoot formation on the vines that had shoot tips removed. Effects of the treatments on cluster and grape berry characteristics were taken at harvesting April by Ms. Chopping and we will be evaluating these results later this year. Application of this research approach in Nebraska has been initiated in the 2006 growing season in collaboration with Dr. Jim Hruskoci, Extension Horticulture Specialist, and with Mr. Javed Sidiqi, a new Masters student.

I helped design experiments involving growth regulating chemical treatments included in Mark Robertson's vineyard research. Pinot Noir clusters are very compact and berries are tightly packed together, often exacerbating disease problems such as bunch rot. Because of this propensity for tight clusters, growth regulating chemical treatments were applied to stimulate elongation of the cluster rachis ("stems" of the cluster) with the goal of achieving more open, looser clusters that would be less prone to bunch rot. Early results suggest that application of gibberellic acid (GA₃) directly to the clusters led to production of more elongated and open clusters. Influence on cluster and berry characteristics was recorded by Mr. Robertson and he, Dr. Wilson and I will be evaluating the potential of this approach with further treatments to be considered for application in the late spring and early summer (November-December in Tasmania). As more is learned about the approach of growth regulating chemical application to create more open clusters, it may prove to be useful for tight-clustered grape cultivars grown in Nebraska vineyards such as Vignoles and Marechal Foch. More study is required to determine the potential utility of such treatments.

Jo Heazlewood (now Dr. Heazlewood) conducted intricate studies on grape flower development, including investigation of the timing of another dehiscence (shedding of pollen) and its relationship to fruit set. From her results, it is clear that weather during fruit set affects pollen viability, and capfall, with cold, wet weather causing poor or incomplete opening of flowers (capfall). Her results make it clear that pollen germinates at or just after capfall, thus weather conditions at this time may adversely affect fruit set. In the future, I plan to investigate how this information can be applied to improving fruit set in Nebraska vineyards.

I was invited to attend two Field Days that were organized by the Vineyards Association of Tasmania. The first field day was held in late Spring (November 10) and focused on disease

Continued on Page 3

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Part II Continued from Page 2

management and spray application technology. The second field day examined trellising systems at three vineyard sites, with special emphasis on spur vs. cane pruning and the potential value of employing the Smart-Dyson trellising system. Vertical shoot positioning is popular in Tasmanian vineyards, but the Smart-Dyson system is gaining favor in some vineyards. My observations of the vineyards encountered as part of the field days, along with my experiences in the vineyards in which I worked, have enriched my knowledge of training systems and numerous aspects of vineyard management.

As mentioned in Part I of this report, I presented two seminars to the faculty and staff of the University of Tasmania. These encounters provided me with an opportunity to discuss the Nebraska grape and wine industry and to showcase the high quality of Nebraska wines. Thanks to those wineries that provided me with Nebraska wines that I used in conducting a wine tasting following the first seminar. There was general agreement that Nebraska wineries are producing great wines!

Paul Read, Professor
University of Nebraska
Viticulture Program

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ASEV Report: MALB, New Cultivars and More

The American Society for Enology and Viticulture-Eastern Section annual conference held recently in Rochester, NY (July 9-12) had something for nearly all enophiles and viticulturists. The first day was comprised of a tour of Canandaigua and Keuka Lake vineyards and wineries, including the historic **Widmer and Dr. Konstantine Frank** vineyards and wineries.

The Finger Lakes Region of New York State is a beautiful area that has over 100 wineries and is a popular tourist destination. The Finger Lakes Region's popularity stems not only from the beauty of these deep glaciated lakes (the Iroquois Nation attributes their shape to the Great Spirit placing his hand on this favored land), but also is related to the diversified agriculture that results in abundant and available produce and of course the numerous vineyards and wineries that contribute to New York's position as the third largest state for grape and wine production (California is #1 and Washington is #2). Jacob Widmer, emigrated from Switzerland and started the Widmer Winery in 1883. It is now owned by **Constellation Centerra**, which had its beginnings as Canandaigua Wineries and is now the world's largest wine company. Fortified wines were at one time Widmer's most important product, but now they have a line of premium table wines (Brickstone Cellars) and the largest production of Kosher wines in the U.S., Manischewitz.

Fred Frank welcomed the group to the Dr. Konstantin Frank Vineyards and Winery. (Fred is Dr. Frank's grandson and now President of the enterprise). He explained the history of the winery, including Dr. Frank's insistence that vinifera grapes could be grown in the Finger Lakes region. Dr. Frank had emigrated from the Ukraine in 1951 and reasoned that if vinifera grapes could be successful there, that should also be true for the Finger Lakes Region. Dr. Frank founded Vinifera Wine Cellars in 1962 after working with Charles Fournier at Gold Seal Vineyards to demonstrate the validity of the concept that vinifera grapes could be grown in the Finger Lakes, with Riesling leading the way. As a result, Dr. Frank is now known as "The Father of Vinifera" in the Finger Lakes region.

The tour concluded with a visit to the newly-opened **New York Wine and Culinary Center** located at the head (north end) of Canandaigua Lake. This lovely 100-million dollar facility is designed to showcase New York State wines and agricultural products and to educate the public about New York's agriculture and its contribution to the economy of the state and the nation. (Did you know that in addition to being third in grape and wine production, New York ranks second in apples and maple syrup and third in milk and onions?)

Professional Reports. The second and third days of the conference were taken up by a number of excellent presentations on a wide range of vineyard and wine topics, culminating in the announcement by **Bruce Reish** of the naming of three new grape cultivars now released by Cornell University's Geneva Experimental Station grape breeding program (see **separate story in this issue**). Hardiness and bud break data are noted on the Nebraska Viticulture Program web-site <http://agronomy.unl.edu/viticulture>. These new cultivars are noted as NY 73.0136.17 ('Noiret'), NY 70.0809.10 ('Corot noir') and NY 62.0122.01 ('Valvin Muscat'). Note: in some tables NY70.0809.10 has been listed as NY789. These three new cultivars, planted in 1999, have been tested in the University of Nebraska Viticulture Program's Nemaha County research vineyards.

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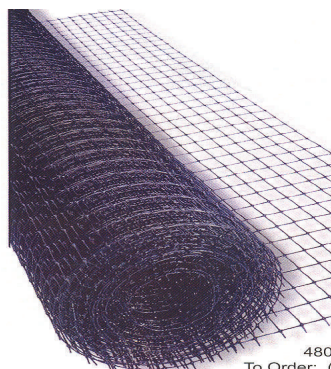
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Highlights of Selected Reports:

Kurtural and Dami - Important studies found best growth and dry matter production of 'Norton' at a pH of 5.2 to 6.0

Hawk, Martinson, Wise and Weigle – A “workbook” of 140 pages on Sustainable Viticulture has been developed for New York grape growers. It is still evolving as an educational tool, but has shown promise for vineyard self-assessment by growers.

Reynolds and colleagues at Brock University – reports on irrigation research noted that irrigated vines had less stress, more transpiration and higher soil moisture levels, leading to increased yield, cluster and berry weight and **increased °Brix**. The latter is an important observation, since “conventional wisdom” suggests non-irrigated grapes make more concentrated wines.

Martin, Zoecklein and Mallikarjunan - Refinements of the use of the “Electronic Nose” were presented (Wayne Woldt, UNL Dept of Biological Systems Engineering reported on the “E-nose” at the 8th Annual Forum in Kearney, NE.

Wei Pan and deOrdunea – Presented pros and cons related to simultaneous malolactic and alcohol fermentations: fermentation completed more quickly than if done in the usual sequential fashion, but increased potential for excess acetic acid, “stuck” fermentations and contamination.

Bowen, Reynolds & Pickering – Discussed icewine production: Harvest parameters (required by law for Ontario icewines) included harvest at -8°C (about 19°F) or colder and 35°Brix or higher. Finished wines must have at least 125 grams of sugar per liter.

Hostetler, Merwin and Brown - Use of white or black geotextile mulches caused no differences in °Brix or pH of fruit, but white increased yield in one test of Cabernet Franc.

Skinkis and Bordelon – Studies on effects of **shading** on ‘Traminette’ – more shading led to less production of desirable volatiles in the wine; exposed fruit produced wines with a more desirable aroma profile.

Main, Threfall and Morris – Presented results of using a bioengineered microorganism, MLOI for ‘Vignoles’ and ‘Norton’. It led to simultaneous alcoholic and malolactic fermentation, with malic acid all but gone by 60 hours of fermentation and a concomitant rise in lactic acid. Resulting wines had slightly higher residual sugar, citric acid and tartaric acid levels.

Vanden Heuvel - Extenday® and Brite ‘n Up® reflective mulches were ineffective as a means of improving berry anthocyanin and phenolic levels, but mulches of crushed quahog (clam) shells had more reflectance than weed control with a Roundup control and increased anthocyanin levels (13%) in ‘Merlot’.

Mansfield – Identified 26 aroma compounds in red table wines made from ‘Frontenac’ grapes. The most common positive aromas were cherry, black currant and blackberry, with varying perceptions of “cooked vegetable” and black pepper. Lockwood - Reported on grape root borer problems found in Tennessee, where it is becoming a serious vineyard pest. It was noted that this insect is a problem in some other states and growers should be alert to possible infestations.

MALB – A symposium, “The Wine Industry vs. Multicolored Asian Lady Beetles” was a highlight of the conference. The biology of the MALB, *Harmonia axyridis*, was presented by Gary Pickering of Brock University. He pointed out that a dark marking shaped like the letter “M” behind the head is a feature that distinguishes it from other lady beetles that are desirable. However, the MALB causes extremely bad aromas in wine when as few as one per cluster are present in the harvested grapes. The MALB has a reflex “bleeding” of a haemolymph substance that imparts bad odors to the wine when present in relatively small amounts. This compound is considered to be a methoxypyrazine, the same class of compounds causing undesirable “cat pee” odors in Savignon Blanc wines. Removal of MALB by use of shaker tables or by floating them off by submerging the clusters in water has been reported to be effective. Other speakers listed positive results by using neem (Aza-Direct) as a repellent, or insecticides such as Sevin, Provado and Danitol have shown promise. Another new insecticide, Venom, may also prove useful. If insecticides are used, **close attention to the PHI (pre-harvest interval) must be exercised** and worker re-entry times observed. Bill Hutchinson (U. of Minnesota) suggested an IPM (integrated pest management) approach be employed. Use of yellow sticky cards as an “early warning system” can be helpful and he stressed the importance of avoiding berry damage. In his studies, neither MALB or yellow jackets break the skins, but are attracted once the skins are broken (by splitting, birds, etc.). Visual bunch inspection as harvest approaches is an important component of an IPM program also. He suggested that if a threshold of an average of 1.25 MALB per bunch is exceeded, spraying will be necessary.

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Three New Wine Grapes from Cornell



'Noiret' ("Nwahr'-ay")

A mid-season red wine grape suitable for the production of varietal wines that will be richly colored with notes of green and black pepper, raspberry and mint aromas, and fine tannin structure. 'Noiret'TM is a complex interspecific hybrid red wine grape resulting from a cross made in 1973 between NY65.0467.08 and 'Steuben'.

- Moderately winter hardy.
- Moderately resistant to powdery mildew, black rot and Botrytis bunch rot.
- Downy mildew can occasionally be a serious problem.
- Spring frost not usually a problem.
- Budbreak usually takes place after Concord and GR 7, but before most *V. vinifera* cultivars.
- Harvested between late September and early October.
- No special problems with machine harvesting.
- Excellent wine quality – superior to other red hybrid varieties.

Overall Recommendation - 'Noiret'TM represents a distinct improvement in the red wine varietal options available to cold-climate grape growers. Wines are free of the hybrid aromas typical of many other red hybrid grapes. Care should be taken to grow 'Noiret' on sites less susceptible to extreme winter temperatures, and downy mildew.



'Corot noir'

A mid- to late-season red wine grape suitable for the production of varietal wines that will have a deep red color and attractive berry and cherry fruit aromas. 'Corot noir'TM is a complex interspecific hybrid red wine grape resulting from a cross made in 1970 between Seyve Villard 18-307 and 'Steuben'.

- Moderately winter hardy, generally more hardy than 'Noiret'TM.
- Moderately resistant to powdery mildew, black rot, and Botrytis, and moderately susceptible to downy mildew.
- Spring frost not usually a problem.
- Budbreak usually takes place late relative to many other cultivars.
- Fruit harvested between early and mid-October in the Finger Lakes Region.
- No special problems with machine harvesting.
- Excellent wine quality – superior to other red hybrid varieties.

Overall Recommendation - 'Corot noir'TM represents a distinct improvement in the red wine varietal options available to cold climate grape growers. Wines are free of the hybrid aromas typical of many other red hybrid grapes, and can be used for either varietal wine production or blending.

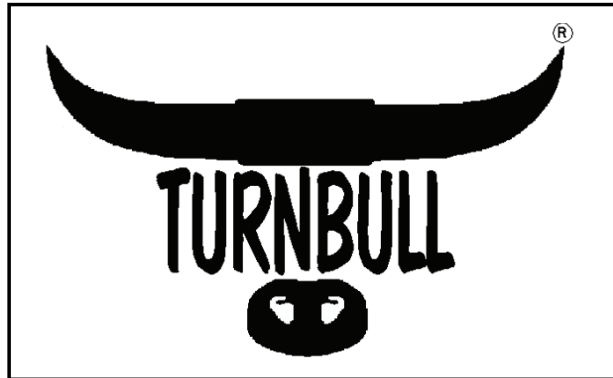


'Valvin Muscat'

A mid-season white wine grape with a distinctive muscat flavor desirable for both blending purposes as well as for varietal wines. 'Valvin Muscat'TM is a complex interspecific hybrid grape resulting from a cross made in 1962 between Couderc 299-35 (an interspecific hybrid known as 'Muscat du Moulin') and 'Muscat Ottonel'.

- Moderately winter hardy.
- Resistant to Botrytis bunch rot.
- Moderately susceptible to downy and powdery mildew.
- Budbreak is usually after Concord but before Cayuga White and Traminette.
- Fruit harvested between late September and mid October.
- Superior muscat wine quality – free of bitterness.

Overall Recommendation - 'Valvin Muscat'TM is recommended for the production of high quality muscat wines, and can be useful for both varietal wine production as well as blending to add flavor and aroma to table wines. Vines are well-suited to good grape growing sites in the Eastern United States, and should only be grown on suitable rootstocks. Some care should be exercised to control disease, and fruit should be picked when the muscat flavor reaches its peak.



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November 11, 2006—Fall UNL Viticulture Program Workshop, Lincoln, NE, University of Nebraska-Lincoln East Campus Union

Further details of these programs will be announced in the Nebraska VineLines and on the University of Nebraska Viticulture Program website. <http://agronomy.unl.edu/viticulture>

