



# Nebraska VineLines

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## University of Nebraska Viticulture Program

**Editors: Dr. Paul Read, Professor of Horticulture & Viticulture and  
Stephen J. Gamet, Department of Agronomy & Horticulture**

### A MILD WINTER AND A GREAT CONFERENCE: PORTENTS FOR AN OUTSTANDING VINTAGE?

**F**irst, the mild winter. Yes, we always worry about how tough our winters are, but the winter of 2010-2011 has been remarkably mild. Of course snow amounts and minimum temperatures will vary with what part of the state one is in, but in reviewing the temperatures at our research vineyards, it is clear that we did not have extremely low temperatures (see Table 1 elsewhere in this issue). Of course, with the roller-coaster-ride that our continental climate usually brings, we need to hope for *gradually* warming temperatures with no late frosts or freezes following bud break. Likewise, we can also wish for nice fruit setting weather during cap-fall (bloom period) and timely rains during the early part of the growing season. Too much to wish for? Well, we're already part-way there with our mild winter temperatures causing minimal bud damage. In fact, I have cut hundreds of buds and found nothing but 100% primary bud survival on projected "count" buds at several locations in eastern Nebraska. Cultivars examined included Chambourcin, Delaware, Edelweiss, Frontenac, Frontenac Gris, La Crescent, Leon Millot, Marquette, Sabrevois, Saint Croix, Seyval Blanc, Valiant, Vidal Blanc, MN 1189, MN 1220, MN 1235, MN 1258 (the MN numbers are University of Minnesota selections that we have in our NE-1020 trials) - very encouraging indeed!

What a Great Conference! There were lots of positive comments provided by those who turned in evaluation sheets, including "Loved the speakers! Informative, down to earth, very knowledgeable"; "great to have speakers who know cold-hardy grapes"; "Guest speakers were exceptionally good this year"; "Loved the hands-on"; and "Practical knowledge was acquired". Several people commented on how well the round tables worked, with lots of give and take and that the round

tables were great learning activities. Many specific positive comments were noted for guest speakers Patty Held, Bill Shoemaker and Tom Cottrell. In addition, praise for the banquet speaker, Doug Frost was effusive, with many comments on how successful he was in relating to the audience, with one respondent noting that "Banquet speaker was very good, had great topic, went well with industry today, better than a loud band!"



Of course there were some good suggestions for how we can do an even better job at future conferences and the planning committee for the 15th Annual Nebraska Winery and Grape Growers Forum and Trade Show will take these suggestions to heart. As you read this issue of the Nebraska VineLines, be sure to be thinking about ideas for future conferences and workshops and communicate them to us. We want to have our educational programs provide the best possible educational opportunities for Nebraska grape growers and winery personnel, so that we can continue to show the world what great grapes can be grown and outstanding wines made from them in our great Nebraska grape and wine industry. One other comment that should be noted regarding the Forum was the statement that "really liked the fellowship with other winery people". Another great reason to be sure that the 15th Forum is on your calendar. Remember to save the dates of March 1-3, 2012 for the 15th Winery and Grape Growers Forum in Kearney, Nebraska. ♦

Shown above: Bill Shoemaker, a conference guest speaker.



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**Table 1. Minimum temperatures at the University of Nebraska Viticulture Program's research vineyards, Winter of 2010-2011.**

Vineyard Location	December, 2010 low T and date	January, 2011 low T and date	February, 2011 low T and date
Nemaha	+ 2.6F on 12/13	- 2.3F on 1/13	- 3.5 on 2/8
Other dates below zero F:	None	1/11, 1/12	2/3
Peru	+ 0.5 on 12/13	- 6.5F on 1/13	- 6.3 on 2/3
Other dates below zero F:	None	1/11, 1/12, 1/21	2/2, 2/8
Nebraska City	+ 0.8F on 12/12/13	- 8.8F on 1/13	- 5.4 on 2/8
Other dates below zero F:	None	1/11, 1/12, 1/20	2/2, 2/3

## NWGGA GROWERS COUNCIL NETS MAJOR GRANT

**C**ongratulations to NWGGA Growers Council Co-chairs, Cathy Oslzly and Karen Skinner for their success in obtaining a significant grant award from the USDA that will be used to enhance grape growers' ability to more effectively employ the "Vine Balance" approach to better viticulture. By the time this issue of the Nebraska VineLines arrives, the March 26 Pruning Workshop will be history, but be sure to take note of the following future opportunities organized by the Growers Council and funded by the USDA grant:

**April 30** - Worker Protection and Safety: Chemicals used in the vineyard and their effects on you and potential physical hazards. Location: Lincoln, more details will be forthcoming.

**May 20 & 21** Vineyard Management, Crop Management and Maintaining Vineyard Profitability (uses the VineBalance workbook developed by Tim Martinson, Cornell University). Lincoln, and central Nebraska location yet to be determined. More details will be forthcoming.

**June 4** - Repeat of Worker Protection and Safety at central or western Nebraska site to be determined.

**July** - From Vineyard to Winery - produce safety guidelines per new federal legislation - dates and sites to be determined.

As additional details develop, emails from the Growers Council Co-chairs will be provided and information will be posted on both the NWGGA and University of Nebraska Viticulture Program web sites. ♦

## A Quick Note on Downy Mildew

**D**owny mildew (*Plasmopara viticola*) was introduced to France from North America in 1878; Italy in the following year and subsequently the other countries of the Mediterranean basin. Furthermore, in Australia it was introduced in 1919 and New Zealand in 1926; today downy mildew is present in all vine cultivation areas.

Downy Mildew is the most prevalent mildew and is spread by rainfall. It attacks leaves, shoots and berries and can quickly defoliate the vine leading to entire crop loss. Optimum

conditions for primary infection takes place when the 10:10:10 scenario occurs: to at least 10mm of rain at a temperature of 10°C (50°F) or more, over 10 hours or more. The fungus survives in the form of spores for 3 to 5 years in old infected leaf material remaining in the soil and, with rain, are splashed onto the foliage. If the spores remain wet long enough the disease begins to develop. This shows up as "oil spots on leaves. Spores form under the oil spot and show up as a "white down". If conditions are right, secondary infection occurs from these spores and the spread of the disease become quite rapid.

Downy mildew can be controlled by the spray application of various chemicals either as pre infection or post infection treatments. ♦

## EXCELLENT BOOKLET FROM JUSTIN MORRIS: CONSIDERATIONS IN STARTING A WINERY

**C**onsiderations in Starting A Winery, University of Arkansas Research Report 983, by Justin R. Morris, Distinguished Professor Emeritus, University of Arkansas, is an excellent booklet that details many things to think about when contemplating starting a winery. As noted in the Impact Statement, "The goal of this publication is to provide information about requirements and procedures or starting a winery. It is not a 'how-to' manual, but rather is designed to serve as a starting point to investigate the many aspects of owning and operating a winery."

Although written for potential start-up wineries in Arkansas, most of the information will be applicable to other locations in the Midwest. The more than 25 sections of this 77-page manual include, for example, Winery Location and Design, The Business Plan (a must in this editor's opinion), Regulatory Approval and more than a dozen sub-chapters under the "Winemaking Plan", including Fermentation, Pressing, Fining, Barrel Aging, Bottling and other important topics. It also includes a lengthy list of reports and publications on Viticulture, Mechanization, Vineyard and Winery Economics, Equipment Costs for Starting a Winery and a list of Useful Resources for Wineries. This booklet is down to earth and full of useful information. This publication is available on the internet at <http://arkansasagnews.uark.edu/408.htm>. ♦

## Effects of Early Defoliation on Yield, Fruit Composition, and Harvest Season Cluster Rot Complex of Grapevines

Paolo Sabbatini and G. Stanley Howell

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*Additional key words.* *Vitis vinifera*, French-American hybrids, *Botrytis cinerea*, source-sink, fruit-set.

Viticulture in Michigan is limited by a cool and humid climate and as a result, there is a problem of harvest season cluster rot, especially in cultivars with compact cluster morphology. Economically important wine grape varieties in eastern North America possess varying susceptibility to harvest season cluster rot. Some important cultivars that are susceptible are Pinot gris, Pinot noir, Riesling (*Vitis vinifera* L.) as well as Seyval and Vignoles (French-American hybrids or interspecific hybrid cultivars). A common characteristic of these cultivars is the compactness of the berries held on the cluster rachis. The aim of this work was to determine whether a quantified amount of leaf removal or a temporary reduction in carbon assimilation at the beginning of bloom would reduce fruit set and cluster compactness. Vines subjected to removal of four or six basal leaves had an average fruit set reduction of  $\approx 45\%$  from a non-treated control. Cluster weight and berries per cluster were similarly reduced with a greater effect on the basal than the apical cluster of the shoot. Reduced fruit set was associated with a reduction in cluster compactness and harvest season rot. This was also reflected in yield and basic fruit chemistry parameters associated with the importance of basal leaves to the developing cluster. Multiple applications of stilet oil at different time intervals resulted in significant reduction in net photosynthesis ( $P_n$ ). A single application had no significant impact on  $P_n$ , whereas multiple applications reduced leaf assimilation rates. However, this reduction in  $P_n$  did not reduce fruit set or improve cluster compactness. There was a strong negative effect of early leaf removal in Year 1 on vine performance in Year 2; this carryover effect increased shootless nodes per vine, reduced the number of clusters per shoot and per vine, and dramatically reduced fruit set and consequently yield per vine. ♦

Joe Fiola, Viticulture & Small Fruit Specialist, University of Maryland Cooperative Extension, has shared some helpful advice from the University of Maryland Fruit Pathology Specialist:

### Fungicide Resistance in Grape Powdery Mildew and Grape Downy Mildew

Anne DeMarsay, Ph.D.  
Fruit Pathology Specialist  
University of Maryland Cooperative Extension

Strains of both grape powdery mildew and grape downy mildew that are resistant to strobilurin fungicides have been found in Maryland. Ms. Jenelyne Colcol, a graduate student

in Dr. Anton Baudoin's lab at Virginia Tech, tested powdery and downy mildew samples collected from two Maryland vineyards and reported that powdery mildew isolates from one vineyard were resistant to strobilurins and showed some loss of sensitivity to sterol-inhibiting (SI) fungicides. Downy mildew samples from the second vineyard were found to be resistant to strobilurins.

### Why is resistance to these fungicides developing?

- Strobilurin fungicides (Abound, Sovran, Flint, and one component of Pristine) are at high risk of resistance development because a single mutation in a fungus can block their action.
  - In pathogenic fungi such as powdery and downy mildews that have many reproductive cycles per season, resistant strains quickly become dominant in a vineyard.
  - As spores from resistance to strobilurins is an all-or-nothing situation. Once resistant fungi become dominant, all strobilurins are useless against that pathogen.
- Resistance to strobilurins is an all-or-nothing situation. Once resistant fungi become dominant, all strobilurins are useless against that pathogen.
- Loss of sensitivity to SIs (Nova/Rally, Elite, Rubigan) occurs more gradually. The more frequently an SI material is used, however, the higher the level of resistance that is likely to develop.

### What should growers do?

There is no way to know in advance what level of resistance may be present in a vineyard. The following suggestions are intended to help growers avoid a sudden control failure and crop loss.

### Powdery mildew

- Growers who have ever applied strobilurins for powdery mildew control or are located near other vineyards that have used them should be aware that resistance may appear suddenly.
  - Replace Abound, Flint, or Sovran in a rotational program for powdery mildew control with sulfur, JMS Stilet Oil, Quintec, Endura, or a potassium salt product such as Armicarb 100, Kaligreen, or Nutrol.
  - Pristine is a combination of a strobilurin and Endura and should therefore be safe to use alone for powdery mildew control in rotation with other materials.
  - Limit applications of any strobilurin, including Pristine, to two per year during critical periods for fruit protection such as bloom, and rotate to another class of fungicide after each application.

See page 4, **Mildew**

## Mildew, continued from page 4

- Growers who have been using the SIs Nova/Rally or Elite for some years for powdery mildew control may experience decreasing effectiveness over several seasons.
  - Switching to Rubigan and/or tank-mixing an SI with 2-5 lb/ac of wettable sulfur (**on sulfur-tolerant grape cultivars**) may improve control.
  - Limit applications of SIs to two per year during critical periods for fruit protection such as bloom and rotation to another class of fungicide after each SI application.

## Downy Mildew

- Growers who are using a strobilurin, including Pristine, to control other diseases and need downy mildew control should add another fungicide to the tank mix. Pristine alone will not control strobilurin-resistant downy mildew because its other component, Endura, is not active against the downy mildew pathogen.
- Choices for tank mixes include captan, copper, mancozeb, or a phosphorous acid (phosphite) such as Phostrol or ProPhyt.
- Ridomil Gold may be used where downy mildew is a serious problem, but carefully. Ridomil is highly prone to resistance development when overused, but testing in the mid-Atlantic states in recent years has not yet revealed any cases of resistance in grape downy mildew.

SIs and strobilurins are valuable adjuncts to mancozeb in controlling black rot, and strobilurins also provide supplemental Botrytis bunch rot control, so growers may want to keep them in their fungicide program for those purposes.

For more information, contact Dr. Anne DeMarsay at [fruitdr@umd.edu](mailto:fruitdr@umd.edu). ♦

## Estimated Value of the Economic Impact of the Wine Industry in Several States of Interest

1.	Washington	2006	\$3.0B
2.	Texas	2009	\$1.7B
3.	Missouri	2009	\$1.6B
4.	Pennsylvania	2007	\$2.35B
5.	Michigan	2005	\$789.3M
6.	Illinois	2007	\$319M
7.	Minnesota	2008	\$36.2M
8.	Iowa	234.3M	
9.	Nebraska	2008	12.0M
	USA	2006	\$90B

(Dates are when estimate was made.)



## SUPPORT YOUR UNIVERSITY VITICULTURE PROGRAM . . . and Get a Tax Deduction too!

**M**any people make year-end tax-deductible contributions to their favorite charities, but did you know that a tax-deductible contribution may be made to support the University of Nebraska Viticulture Program? A contribution can be made to the **University of Nebraska Foundation**, 1010 Lincoln Mall, Ste. 300, Lincoln, NE 68508. Provide the notation "Gift for the University of Nebraska Grape Cultivar Evaluation Fund #3017." In these days of tight budgets, every dollar counts—by your donation, you can help the research and education programs and at the same time, gain a tax deduction. Thanks for your support!

## The University of Nebraska Viticulture Program

**From here to there... Photos taken during the judging making the final wine selections for the banquet.**



## Bill Shoemaker: Further Notes on Heat Units

**A**nother element that heat units may fail to measure is day length and solar exposure. There are raw energy inputs that directly impact growth and plant development. Air temperature is only indirectly related because of the movement of air masses. So that's why we see differences in the relationship between heat units and maturity across regions. The Nordic countries, for example, seem to be able to mature some varieties at lower levels of heat unit development. But they also have very long days and good sunlight exposure/intensity.

The way I view it, is that heat is like an "accelerator" for plant growth and development. It regulates the rate of the whole plant physiological engine. Light, on the other hand is fuel, a fundamental input for the plant to operate. Respiration is the other key. It consumes the products of photosynthesis. The Nordic countries generally have lower rates of respiration because they don't get so hot. But they have long, cool days with high intensity light, which builds plant strength and allows the plant to develop maturity efficiently. ♦

\*Please be sure to visit us on the Web for information and updates at: <http://agronomy.unl.edu/viticulture>.

## A Short History of the 'Edelweiss' Grape

by Patrick Pierquet, Enology Assistant, OSU – OARDC  
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Most readers of this newsletter have some familiarity with the Edelweiss grape variety. It is quite hardy and productive, and generally trouble-free in the vineyard. This grape has become quite popular in Midwest vineyards, especially in Iowa and Nebraska where it seems to be developing into a “signature” regional wine variety. Wines made from Edelweiss can be of very high quality. For example, at the 2007 Florida State Fair International Wine Competition, a semisweet Edelweiss wine from Schilling Bridge Winery (Nebraska) was awarded a rare Double Gold medal and was selected Best of Show in the white wine category.



(Above) Edelweiss Grape

Most of you know that Edelweiss came from the work of the late Elmer Swenson, a Wisconsin dairy farmer and hobbyist grape breeder. However, the early history of this variety is not very well known. It's quite an interesting story. Though it was bred and selected in Wisconsin, Edelweiss actually got its start not in the Midwest, but in New England. Like most of the introduced Swenson varieties, Elmer did not choose the name for this grape... the names for most of the Swenson varieties were the result of other people's suggestions. Edelweiss was hybridized in the 1950's, and came from Elmer's cross "MN 78 X Ontario". For many years it was known simply as ES #40, meaning it was the 40th "advanced selection" that Elmer had made from his seedling populations.

ES #40 was one of Elmer's favorites, and he happily shared cuttings with anyone who wanted to test it. One of the first people to whom Elmer sent cuttings was the late Elwyn Meader, horticulture professor at the University of New Hampshire. Dr. Meader was a very energetic and productive plant breeder, with an interest in all types of crops. (During his tenure at the U of NH, Meader developed over 60 named

varieties of fruits and vegetables, including the well known Heritage raspberry.)



(Above) Dr. Elwyn Meader)

ES#40 apparently performed very well at the University of New Hampshire test planting and Meader was excited about its potential for his New England climate. In the early 1960's, a New Hampshire pharmacist named John Canepa decided to establish a vineyard and winery in the Laconia area. He contacted Professor Meader, who suggested he grow ES#40. Thus it was John Canepa, at his White Mountain Vineyards and Winery, who established the first commercial planting of ES #40, and made the first commercial wine from it.

Unfortunately, White Mountain Vineyards eventually failed due to financial problems from the restrictive New Hampshire rules governing small wineries. But in the meantime, Canepa and Meader urged Elmer to give ES 40 the name "Edelweiss", which is the name for a small alpine flower that grows in Switzerland. Elmer liked that suggestion, and in 1978 the variety Edelweiss was formally released to the public, as a joint Swenson/University of Minnesota introduction. Since that time, nearly two dozen additional Swenson hybrids have been named and introduced. However, Edelweiss seems to be the most widely planted of Elmer's varieties. I believe it will be the one Swenson variety that endures the longest, and for which Elmer is most fondly remembered. ♦



(Above) Edelweiss Flower

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## Nebraska VineLines Calendar of Events

- 3/29 - 4/1  
Wineries Unlimited  
Richmond, VA
- 4/1 - 4/3  
DrinkLocalWine.com  
Conference, St. Louis, MO
- 4/12 - 4/14  
License to Steal National  
Wine Marketing Conference
- 5/8 - 5/11  
WineAmerica 2011 Grape &  
Wine Policy Conference  
Washington DC
- May 23-24, 2011  
National Small Food Manufacturer Conference  
Presented by the Food Processing Center, University of Nebraska-Lincoln  
For more information, go to [www.fpc.unl.edu/nsfmc](http://www.fpc.unl.edu/nsfmc). For questions or to  
have a brochure mailed to you please contact conference coordinator,  
Jill Gifford at 402-472-2819 or [gifford1unl.edu](mailto:gifford1unl.edu).



## Future Nebraska Winery & Grape Growers Forums

- 2012 – March 1 – 3, Holiday Inn, Kearney
- 2013 – February 28, March 1 & 2, Holiday Inn, Kearney



Above: Wine Winners for our 14th Annual Winery and  
Grape Growers Forum Banquet.

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and updates at:  
<http://agronomy.unl.edu/viticulture>.