Nebraska VineLines

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University of Nebraska Viticulture Program

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MARTINSON WORKSHOP HIGHLIGHTS

Thanks to a grant obtained by Cathy Oslzly and Karen Skinner, Co-chairs of the NWGGA Growers Council, Professor Tim Martinson, Cornell University Viticulture Extension Specialist, was able to re-visit Nebraska and share his expertise in two workshop/field day opportunities for Nebraska grape growers. Martinson is lead author of the popular grower workbook, "Vine Balance" and his information was as well-received as it had been when he was a featured speaker at the 13th Annual Nebraska Winery and Grape Growers Forum in 2010. Following are a few highlights from the May 20th & 21st workshops.

- Balanced vines have enough vegetative growth to ripen a crop of high quality grapes and thus lead to production of excellent wines.
- Vineyard design is a critical factor in vine balance.
- If vine spacing, especially in –row, is too close, excessive shading will result (a target should be a leaf layer number of 1.5; this agrees with the LLN found in Christina Bavougian's M.S. work on 'Frontenac' trained on GDC).
- A Ravaz Index (ratio of yield per plant to the previous year's pruning weight per plant) should be in the range of 5 to 12, with around 8 being optimum.
- Shoot density should be in the range of 12 to 15 shoots per meter of cordon for non-divided canopies (Winkler's research indicates that about 15 mature leaves are required to fully ripen a cluster.)
- Another way to look at shoot density is to note that about 12 to 15 square centimeters of leaf area are required to ripen one gram (1g) of fruit.
- It is critical to keep good records! (Where have we heard that before?) Cluster weight compared for a given cultivar over a period of several years is invaluable in estimating crop load/yield.
- He reiterated that too much vegetative growth causes excessive shading, too many leaf layers and crowded shoots. This problem leads to less fruitful buds in the next crop year because the nodes that give rise to next year's buds need exposure to sunlight.
- Balanced vines will have about 0.3 lb of pruning weight per foot of canopy and should yield 3 to 5 lbs. of fruit per 8 foot of canopy.
- Hybrid grapes may not be suited to VSP, but vines trained to high cordon systems can be modified through shoot thinning, thus resulting in higher quality fruit and wines.

Martinson also shared data from Professor Gerald White's economic research on canopy management costs for three trellis systems:

- Vertical Shoot Positioning (VSP)-$842 / Acre
- Top Wire Cordon - $323 / Acre
- Umbrella Kniffen - $485 / Acre ◆

Interesting quotes from Mark Chien, Statewide Viticulture Educator, Penn State Cooperative Extension:

- In cool/cold wine regions there are two primary viticultural goals: to get fruit to full maturity so it can make the best possible wine, and to have the vines survive the winter so they have a change to make wine. The best wines are made from fully mature grapes.
- I have general belief that as a wine consumer I would always prefer a ripe hybrid wine over an unripe *vinifera* wine.
- The cold, hard truth is that cool-cold areas are best suited for white wine production so the focus of any cool-cold wine region should be on white wines. ◆

DEALING WITH DISEASE

Some further notes on disease management are noted in the following paragraphs. As always, be sure to consult the Midwest Commercial Small Fruit and Grape Spray Guide and always follow label directions and cautions.

Black Rot – causal agent is *Guignardia bidwellii.* Early season preventive sprays include Mancozeb and sulfur – this combination provides broad-spectrum control (good for Black Rot, Phomopsis and Downy Mildew) that is less expensive than many other fungicides. If heavy rains occur after spraying, it will be necessary to spray again because these materials are protectants, not systemic.

Important Note: Sulfur should not be used on sulfur-sensitive cultivars, including Chambourcin, deChaunac, Concord, Cynthiana/Norton, Marechal Foch, and Leon Millot. Data are lacking regarding sensitivity to sulfur for Marquette, LaCrescent and several others (see Spray Guide).

Sterol inhibitors such as Rally or Elite offer systemic activity while strobilurins (Abound, Sovran, Flint) provide good protection against Black Rot, but little to no activity against Downy Mildew and Powdery Mildew.

Downy Mildew (*Plasmopara viticola*) and **Phomopsis** (*Phomopsis viticola*) also become serious problems during conditions such as those experienced this spring (2011). The above-mentioned Mancozeb and sulfur combination will provide protection from Black Rot, Phomopsis and both mildews. However, they are not "rainfast," so will require re-application following heavy rains. Rainfast options that are good for Downy Mildew control include Ridomil, Presidio and the phosphorous acid materials, Prophyt and Phostrol.

Powdery Mildew (*Uncinula necator*) is often stated to be the most important disease of grapes worldwide. Sulfur is the most commonly used spray, except for cultivars for which sulfur is phytotoxic such as Chambourcin, Cynthiana/Norton, Concord and several others (consult Spray Guide for an extensive list of susceptibility to diseases, and to sprays such as sulfur and copper). Bicarbonate materials such as Armicarb O and Milstop, JMS stylet oil and Purespray are other organic options, while Pristine, Quintec, Abound, Elite, Nova and Sovran are effective non-organic options to consider.

CULTURAL PRACTICES

Canopy Management. An open canopy that allows good air circulation is an important weapon in combating grape fungal diseases. Air flow dries susceptible foliage and fruit, thus reducing opportunities for the fungal spores to germinate and cause infection.

Clean-up. "Cleanliness is next to Godliness" is a saying that merits attention when trying to minimize chances for grape fungal diseases to become problematic. Removal of dried-up berries ("mummies") at harvest time or soon after will reduce inoculum for Black Rot, for example. Fruit and leaves that have been infected by Black Rot, Phomopsis, Downy Mildew or Powdery Mildew will provide inoculums for future infections, so removal is important. It should be noted that mummies, infected leaves and shoots left in the canopy are much more apt to cause infection than infected plant parts that are on the ground. Remember also that prunings can harbor not only disease inoculums, but may also be a hiding place for insects such as the Apple Twig Borer (aka Grape Cane Borer). See discussion on our website for further details about this pest. Burning prunings where allowable, or removal, chopping and burial are other approaches to these important "clean-up" steps. ◆

EARLY SUMMER VINEYARD TASKS

As spring moves into summer, it is important to remain vigilant and persevering with vineyard management tasks. Although it might be tempting to sit on the veranda and sip one or more of those great Nebraska summer wines (Edelweiss, one of the many lovely "blushes," Lacrosse, Traminette and Brianna, to name a few) and contemplate the meaning of life (it's a great life here in this paradise we call Nebraska!), it is critical to follow your vines as carefully as at other times of the year. In particular:

1. Walk your vineyard rows and monitor for insect and disease problems. Remember, a hornworm can strip a cane of all green vegetation overnight.
2. If insect or disease problems are apparent, follow recommendations found in the Midwest Commercial Small Fruit and Grape Spray Guide.
3. Provide irrigation as needed, especially in dryer areas of the state. Avoid excessive irrigation.
4. Discontinue fertilization with nitrogen and potassium. Excess vegetative growth is encouraged by excess nitrogen and excess moisture.
5. Evaluate your vines for obvious symptoms of micronutrient deficiencies, especially if your vineyard site is on soils of high pH. Correct by application of appropriate foliar micronutrient sprays.
6. Continue weed control measures. Weeds compete with the vines for water and nutrients.
7. Canopy management: Remember Richard Smart's admonition that our goal is to turn the light energy of the sun into chemical energy via photosynthesis, that is, turn "Sunlight into Wine." This requires good fruit and leaf exposure. When leaves shade each other, very little light strikes the lower (shaded) leaf, so minimal photosynthesis takes place. Ideally, the flower/fruit clusters have been exposed to light since fruit set, thus avoiding sunscald problems.
8. Consider taking petiole samples at veraison for tissue analysis by an appropriate laboratory. A field Day addressing this concept and other late summer vineyard tasks will be held on July 30. (See websites for details).
9. Evaluate potential crop load. Is it predicted to be at or near desired yield levels? Count clusters on several vines for a given cultivar, multiply the average cluster number by the number of vines per acre and then multiply that number by the average weight per cluster for that cultivar based upon records for that vineyard.
10. Keep good records. As you approach harvest, be sure that you have all necessary harvest equipment clean and ready, including a scale to determine cluster weights. ◆

CONCERNED ABOUT FOLIAR PHYLLOXERA?

Although the root gall form of phylloxera is only a problem on classic winegrapes such as Chardonnay, Riesling, Merlot, Lemberger and other *Vitis vinifera,* some concern has been expressed about damage caused by the foliar form. (Note that all *V. vinifera* should be grafted onto phylloxera-resistant rootstocks.) The Midwest Commercial Small Fruit and Grape Spray Guide provides advice on treating the foliar form of phylloxera (once named *Phylloxera vastatrix*, now re-named *Dactylasphaera vitifoliae*). Chemicals recommended include (use only one) Endosulfan 3EC at 1.33 qt/ A. or, Danitol 2.4EC at 10.7 fl oz/A or Assail 30SG at 2.5 oz/A. **Timing is important! Application of insecticide should take place at bloom and again 10 to 14 days after bloom**. Note that Endosulfan can cause severe phytotoxicity to cultivars such as Chambourcin, Concord, Baco Noir, Cynthiana/Norton, Chancellor and other cultivars (refer to product label for further notations of potential problem cultivars, also note that EC formulations are more likely to cause damage than WP formulations). Depending upon the severity of the previous year's infestations, one should carefully evaluate the economics of treatment, i.e. will the benefit of control justify the cost of the spray? Aesthetic considerations may warrant treatment even when there may not be a direct economic benefit. Moderate infestation of especially susceptible cultivars such as Frontenac may not warrant spraying, since Frontenac may be extremely vigorous on more fertile soils and a mild infestation of phylloxera may tend to reduce rampant vegetative growth.

Some Nebraska and Midwest grape growers have reported that Danitol has provided desirable control of foliar phylloxera. As with all pesticides, **always carefully read the label and follow all label restrictions and cautions**. **Remember, the label is a legal document and should be adhered to exactly**.

An excellent , detailed discussion of grape phylloxera may be found in Donn Johnson's University of Arkansas publication FSA 7074, entitled "Biology and Management of Grape Phylloxera," (website is http://www.uaex.edu).

For further assistance with concerns about phylloxera, contact your Extension Educator or the University of Nebraska Viticulture Program staff:
(pread@unl.edu, 402-472-5136 or sgamet@unl.edu). ◆

VIGILANCE IN THE VINEYARD

Spring and early summer is a critical time in the vineyard. Fruit set has occurred, tying and trellis management is under control, but it's not time to become complacent. The fungicide sprays recommended for pre-bloom, fruit set/post bloom and subsequent sprays should not be neglected. With the recently experienced cool, wet conditions (at least in Eastern Nebraska), conditions have been conducive for many of the fungal diseases to develop in a significant and potentially serious way. It is critical that these sprays not be neglected. Details of the chemicals to use, rates and timings are presented in the Midwest Commercial Small Fruit and Grape Spray Guide. (Available for $8 from the University of Nebraska Viticulture Program; send a check made out to the University of Nebraska Viticulture Program, to Paul Read, 377 Plant Science Hall, Lincoln, NE 68583-0724).

Be sure to pay attention to the recommendation that strobilurin chemicals such as Abound and Sovran should not be applied more than three sequential times and no more than four times per year but instead should be alternated with alternative fungicides such as Nova plus Mancozeb, Rubigan plus Captan or other recommendations found in the Spray Guide. Also remember to always follow all label directions when applying any pesticide.

Other considerations for this time of the year include scouting for insects, fertilizing, and weed and row-middle management. A general principle is that disease management must be done in a preventative mode, while for the most part, insect management should be based on application of a suitable insecticide for an insect infestation that has been determined to be at a threshold portending a negative economic impact on the crop. If soil/tissue tests indicate, or previous years' growth was inadequate, a side-dressing of nitrogen should be considered. However, it is recommended that no fertilizer be applied after about June 20th. This is because excess nitrogen can cause too much vegetative soft growth late in the growing season, thus delaying hardening and making the vines vulnerable to winter injury.

Weed competition can be one of the biggest threats to achieving adequate vine growth during the growing season, so attention must be given to keeping at least a two-foot weed-free zone along the vine row (Bruce Bordelon, Purdue University Viticulturist) would argue for this to be at least four feet wide). Our weed management study involves looking at mulches as alternatives to chemical weed control, with some systems appearing to offer adequate weed control without apparent detriment to fruit quality and yield. This year's harvest results will help confirm or reject use of mulches as viable weed management alternatives to chemical weed control. These results will be presented in a subsequent issue of the Nebraska VineLines. ◆

INTERESTING TIDBIT

Doug Frost, Master Sommelier and Master of Wine, who spoke at the 14th Annual Nebraska Winery and Grape Growers Forum in March of this year, was recently featured in an advertisement for Rioja (Spanish) wines. In it he is eating a hot dog with "the works" and has a glass of Rioja wine in his hand. The message? Wine (Rioja, in this case) can be matched with "every manner of cuisine, from the high to the low". ◆

SAVE THE DATES!

· 27th Annual Midwest Grape & Wine Conference and Trade Show
Thursday, February 9 to Sunday, February 12, 2012
St. Charles Convention Center, St. Charles, MO
Rozanna Benz, Conference Director
Phone: 573-236-4629, email: rbenz@vwm-online.com
Learn more at **www.midwestgrape.com**.

UNVP Field Days
· July 30, 2011 – Petiole Sampling, Crop Estimation and Summer Vineyard Management Field Day at
Prairie Creek Vineyards, Central City, NE

(See **UNVP**, page 4)

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(**UNVP**, from page 3)

Procedures for petiole sampling and interpretion of results will be discussed, along with crop estimation and summer vineyard tasks.

· **August 27, 2011 – Mechanical Harvester Field Day**
Ida's Vitas Vineyard, Ogallala, NE.

The western Nebraska growers associated with 5 Trails Winery have taken delivery of a machine harvester and will be discussing and demonstrating its merits at this field day.

More details about these Field Days will be available soon. Watch our web sites http://agronomy.unl.edu/viticulture, the NWGGA Growers Coucil emails and future mailings. ◆

For more information about these events and other important updates, visit us on the Web at:
http://agronomy.unl.edu/viticulture.

Nebraska VineLines Calendar of Events

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Future Nebraska Winery & Grape Growers Forums

- 2012 – March 1-3, Holiday Inn, Kearney
- 2013 – February 28, March 1 & 2, Holiday Inn, Kearney
- 2014 – February 27-28, March 1, Holiday Inn, Kearney