

# Le Vigneron

*A newsletter for the grape growers and wine makers of Oklahoma*

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**Inside this issue:**

<i>The Enology Issue</i>	1
<i>GMSC Update</i>	1
<i>Technical Tittle</i>	2
<i>Technical Tittle cont.</i>	3
<i>Blog Update</i>	3
<i>Viticulture Education</i>	4
<i>Graduate Students</i>	5
<i>Enology at FAPC</i>	6
<i>Black Rot Advisory</i>	7
<i>Black Rot Advisory Cont.</i>	8
<i>Cultivar Spotlight</i>	9
<i>Black Rot Advisory Cont.</i>	10

## The Enology Issue

I thought it was about time to bring our enology efforts to the forefront with this issue of Le Vigneron. Our winemaking facility is up and running and research is already being done on blackberries and grapes. The blackberry research consists of 2 cultivars ('Apache' and 'Ouachita') grown at two locations (Broken Arrow, OK and Clarksville, AR) to assess differences in fruit quality, organoleptic traits, and wine quality. A graduate student, Youri Joh is working on this project in conjunction with Dr. William McGlynn, Dr. Eric Stafne, and Richelle Stafne. The grape wine is being made from 'Cabernet Franc' from the Cimarron Valley Research Station at Perkins. Another graduate student, Yannis Oikonomakos, is studying antioxidants all along the process of grapes, to wine, to waste (pomace). It has been exciting to finally get the enology lab to the point where we can start doing some research. I am looking forward to microvinification where we can evaluate several cultivars, cultivar/rootstock combinations, and other genotypes for their wine quality. There are many other research topics that can be addressed as well including winery sanitation (food safety), optimization of yeasts, blending, chaptalization, sensory analysis, and so many more. So, enjoy the photos of what we are doing on the campus of OSU at the Food and Agriculture Products Center.

### 2009 OSU Grape Management Short Course Update

**Eric T. Stafne**

Unfortunately, I missed the last class due to a conflict. I had a meeting at ODAFF in Oklahoma City, so I let Dr. McGlynn, Dr. Smith, and Becky lead the class. In July we will make our annual visit to the Woodland Park Vineyards and Winery in Stillwater. That visit always makes for a very entertaining time and also provides a little bit of advertising for the winery. The Hanes have been very good in working with OSU so we like to keep them involved by taking the class to their winery every year. Overall, things are going well and I look forward to teaching the canopy management section in July.

## The Technical Tipple

**William McGlynn**

The wine under the microscope in this edition of *Le Vigneron* is a 2008 Rougeon from Missouri. This grape, also known less romantically as Seibel 5898, is a French hybrid variety. Perhaps Rougeon's greatest claim to fame stems from its deep red color. It is very highly pigmented and is most often used in blending to lend a bit of intensity to other wines. The vines are prized for their hardiness but are also known for inconsistent yields. They tend toward alternate bearing, although they can be very productive in an "on" year. Likely these yield problems help explain why this grape is not too widely grown in our region. Beyond that, Rougeon is a fairly late-ripening grape and is also somewhat vulnerable to bunch rot. On the other hand, did I mention that the vines are quite freeze tolerant?

On to the testing... Following are the objective test results we obtained:

### 2008 Missouri Rougeon

pH: 3.29

Titrateable acidity: 6.6 g/L as tartaric

Free SO<sub>2</sub>: 16 ppm

Total SO<sub>2</sub>: 56 ppm

Residual sugar: ~0.6 %

Alcohol: 12.9% (Labeled as red table wine [7-14%])

Looking at the above results, we can see that the titrateable acidity is in a very acceptable range for red wine and the pH is as well, although it falls toward the low end of the range. The residual sugar is in the range of an off-dry wine. The free SO<sub>2</sub> level is 16 PPM. Given the wine's pH, that level of free SO<sub>2</sub> should translate to a molecular SO<sub>2</sub> concentration of about 0.5% -- that's a touch below the standard recommended baseline of 0.6%, but likely the concentration is sufficient to maintain the wine's stability given that the wine is not intended or recommended for long-term storage. Overall the fundamental chemistry is good.

The subjective impressions:

The clarity was good, although the wine is so highly pigmented as to be fairly opaque in the glass. The color was mostly ruby red/purple, very intense, with no hint of browning. The legs were quite pronounced, perhaps due to the combination of alcohol and sugar.

As for the aroma, the wine definitely smelled of berries, with pronounced strawberry and raspberry notes. There was also a plum or prune aroma in the glass. The smell of spice was also present, although it was fairly subdued. The predominant spice aroma was clove, perhaps with a hint of cinnamon. On balance the aromas were not especially complex but were very pleasant. They definitely set the stage for the taste to follow.

The body was medium and while the sugar and the acid were very obvious, the balance between them was good. Indeed, both served to highlight the fruit aromas and flavors in the wine. The astringency was muted and there were no surprising flavors. The fruit notes resolved into a powerful black cherry flavor on the tongue. There was also a noticeable but pleasant herbal flavor present that hadn't been obvious in the aromas. The taste was of green pepper with perhaps a bit of olive. There was also a bit of earth or stone in the flavor. Still, the overall impression was definitely of fruit.

## The Technical Tipple, cont.

**William McGlynn**

The final verdict:

This Rougeon is quite pleasant and, frankly, a bit of a surprise to yours truly. One is often accustomed to expecting some rather strong sensory characteristics from a French Hybrid grape, yet this wine is light, fruity, and very drinkable. It is not especially complex or challenging, but it has the good sense not to aspire to be more than it is. It's fairly accessible even to a novice wine aficionado and yet there's nothing in it to offend a more seasoned sipper.

The fact that this particular wine is sold under a trade name rather than the name of the varietal may help to boost its appeal to the general public. In any case it seems to fit the character of the wine. It would go well with a wide variety of foods, perhaps matching particularly well with pasta dishes and stir-fry. Given its versatility and broad appeal, I imagine this wine is a popular seller for the winery that produces it.

It's also easy to see why this grape is so often used for blending. It could be the perfect complement for grape varieties that tend produce less pigment in our climate – including perhaps some *vinifera* cultivars. And did I mention that the vines are freeze tolerant?



**The Technical Tippler's ranking of a 2008 Missouri Rougeon: 7 and ½ out of ten flasks.**

The Technical Tippler welcomes suggestions for wines to evaluate and evaluations to conduct! Feel free to email suggestions to [william.mcglynn@okstate.edu](mailto:william.mcglynn@okstate.edu).

## OGGWMA Grape Blog Update

**Eric T. Stafne**

In the last issue I introduced my blog to you. In order to read the blog you must be a member of OGGWMA, but I am willing to entertain other options for any other group that would like to see my blog as well. One of the problems with a blog is that people might read it, but never engage the author. I may have one or two comments per week on any topic I cover. Sometimes, readers bring topics to my attention that I can also go into more detail on — that certainly makes my life easier. Coming up with topics every day is not easy, so I have scaled it back some and write when the mood strikes me. That still ends up being about three times per week. So, if you haven't read the blog yet, give it a try and let me know what you think.

## **Viticulture Education Program for Grape Growers Administered by OSU**

**Eric T. Stafne**

### **Viticulture Education Program**

The program is a cooperative effort among Oklahoma State University – Stillwater (OSU-S), Oklahoma State University – Oklahoma City (OSU-OKC), Tulsa Community College (TCC), and the Oklahoma Grape Growers and Winemakers Association (OGGWMA). It is administered by OSU-S.

This is a two-tier professional education program. The Basic level provides college training in the fundamentals of horticultural science, plus applied training in viticulture and related techniques through OSU Cooperative Extension. The Advanced level provides further college training in horticultural science and related disciplines, plus further applied training through OSU Cooperative Extension. There is a five-year total time limit to complete the program. The Basic level would need to be completed in two years, and the Advanced level would need to be completed no more than three years after completing the Basic level.

The list of approved courses and workshops may change over time. Participants should obtain approval from OSU-S prior to enrollment in courses or workshops other than those specifically listed. Knowledge testing will be required at completion of short courses and Extension workshops. A grade of “C” or better will be required in all college-level courses. Participants who anticipate matriculating towards a college degree in horticulture at OSU-S, OSU-OKC, or TCC should contact an academic advisor at the appropriate institution for guidance in college course selection. Those intending to eventually pursue at B.S. in horticulture should contact Dr. Brian Kahn, Department Undergraduate Advising Coordinator at OSU-S.

OSU-S will collect a one-time program registration fee of \$25. Any additional fees for courses, workshops, conferences, pesticide applicator testing, etc. will be paid directly by program participants to the appropriate entities. Participants are responsible for documenting attendance at events, and agree to provide transcripts for purposes of verifying satisfactory completion of required college courses. Participants completing each level of the Viticulture Education Program will be duly recognized with a framed certificate at the annual conference of the OGGWMA.

For more information, or to register for the program, participants may contact me, visit the website ([http://www.hortla.okstate.edu/grapes/viticulture\\_education\\_program.html](http://www.hortla.okstate.edu/grapes/viticulture_education_program.html)) or write to:

#### **Viticulture Education Program**

**c/o Ms. Stephanie Larimer**

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# Graduate Students with Enology-Related Projects



Above: Youri Joh making wine from blackberries.



Above: Yannis Oikonomakos weighing 'Cabernet Franc' grapes.



# Photos from our Enology Facility at the FAPC



## Grape Pathology Research Update: Black Rot Advisory

Damon L. Smith

As many of you are already aware (some, painfully) black rot is the most destructive foliar and fruit disease of grapes in Oklahoma. The pathogen (*Guignardia bidwellii*) is widely distributed around the State with endemic populations of the pathogen routinely found on wild grapes. Management recommendations focus on reducing leaf and fruit infections by removing mummies from the trellis when grapes are dormant, good canopy pruning practices, and preventative or curative fungicide applications. Depending on the mode of action for various fungicides labeled to control black rot, timing of fungicide application is critical. A relatively simple disease model has been developed and evaluated in the Northeastern U.S. for recommendation of preventative and curative fungicide sprays (Table 1). The model uses temperature and hours of leaf wetness to determine the most critical periods of fungal infection and growth. Finding these critical periods in a real-time format can facilitate the timely application of fungicides to manage black rot.

**Table 1. Hours of continuous leaf wetness required for an infection by the fungus that causes black rot at select temperatures**

Temperature (°F)	Minimum hours of continuous leaf wetness
50	24
55	12
60	9
65	8
70	7
75	7
80	6
85	9
90	12
Spotts, R.A. 1977. Effect of leaf wetness duration and temperature on the infectivity of <i>Guignardia bidwellii</i> on grape leaves. <i>Phytopathology</i> 67:1378-1381	

The black rot disease model has great potential for use in Oklahoma grape production. Weather in Oklahoma can vary tremendously resulting in periods highly conducive for disease development (Early Spring in Oklahoma) or extended periods that weather is not favorable for disease (typically July and/or August in Oklahoma). A black rot disease model can help eliminate unnecessary fungicide sprays. Reducing or eliminating fungicide applications through the use of disease advisories is profitable, and is a positive step toward sustainability in 21<sup>st</sup> century agriculture. Several valuable disease advisories and forecasting systems have already been developed for other crops in conjunction with the Oklahoma Mesonet weather service. The implementation and validation of a grape black rot advisory is a natural fit for the Oklahoma disease prevention arsenal.

## Black Rot Continued

The goal of a portion of my research is to generate an interactive tool for growers, that provides a free, site-specific, weather-based, internet accessed advisory to better predict epidemics of black rot. The accuracy of fungicide applications on grapes across regions with black rot pressure will be improved by providing accurate predictions of disease based on epidemiologically significant weather events. This will enable better control of black rot and reduce unnecessary applications of fungicide.

This goal is being addressed with replicated demonstration plots located in diverse grape growing regions in close proximity to Oklahoma Mesonet weather stations. Replicated treatments include several cultivars with differential levels of resistance that are sprayed with fungicide based on recommendations using the black rot model in conjunction with 84-hour weather forecasts provided by the Oklahoma Mesonet, a calendar/physiological based model, or not sprayed. On-site weather stations have been installed to monitor the performance of the Mesonet weather output and to augment the validation process.

### SUMMARY OF RESULTS:

Replicated research trials were established in the 2008 growing season at Stone Bluff Cellars (Stone bluff, OK), Parson's Vineyard and Winery (Shawnee, OK), and Rock Creek Vineyards (Norman, OK). At each location two blocks of plants (black rot resistant cultivar and black rot susceptible cultivar) were split into five replicates with three treatments per replicate. Treatments included calendar-based application of fungicides (e.g. a spray applied every 7-14 days), application of fungicides using the Mesonet weather inputs in the advisory as described above, or not treated with fungicide. All fungicide programs were used until the beginning of veraison (fruit ripening). Further fungicide application was applied by the grower on an "as needed" basis to control pre-harvest diseases.

Due to cooler dry weather early last season, disease levels were low across all sites, with no incidence of black rot recorded at Rock Creek Vineyards. At Stone Bluff Cellars, disease levels were low relative to Parson's Vineyard and Winery. For Calendar-based applications of fungicide at Stone Bluff Cellars, nine and eight sprays were applied to the susceptible ('Chardone1') and resistant ('Cynthiana') cultivars, respectively. At Parson's Vineyard, eight sprays were applied to the black rot resistant ('Vignoles') and susceptible ('Cabernet Franc') cultivars for the calendar-based fungicide applications. At both locations use of the advisory-based application of fungicide reduced the number of fungicide applications by an average of approximately 45%. At Parson's Vineyard and Winery a statistically significant ( $P < 0.05$ ) interaction of cultivar and treatment was evident for fruit disease incidence. Level of fruit disease was very low for the susceptible cultivar (Fig. 1). Treatment protocols for the susceptible cultivar were not significantly different ( $P > 0.05$ ). For the resistant cultivar, levels of fruit incidence were not significantly different for the advisory and calendar-based applications of fungicide, while the non-treated plots had significantly higher levels of fruit disease (Fig. 1). Yield was statistically lower for plots sprayed according to the advisory versus plots sprayed according to calendar-based applications (Fig. 2). Non-treated plots were not significantly different from the calendar-based or advisory application of fungicide (Fig. 2). There were no other significant responses to treatments at Stone Bluff Cellars, due to the extremely low levels of disease throughout the season (*data not shown*).

In summary, using the advisory reduced the numbers of sprays by almost 50%. Affects on yield were somewhat reduced in the plots treated by the advisory, but the reduction was considered minimal. More field studies are currently underway for the 2009 growing season to better validate these results. Trends in the 2009 season appear to be very similar to those in the 2008 growing season. However, more advisory sprays have been applied this season, compared to last season, due to weather conditions favorable for the pathogen for much of the Spring portion of the season.

Federal funding has been obtained from the Integrated Pest Management program to subsidize advisory programming, user interface development, and maintenance of the advisory on the Mesonet Agweather website. Interactive advisories of this form are very expensive to develop and maintain. We anticipate that programming for the advisory and user interface will begin this fall. We would like to have a fully functioning product available to the public, and for further site validation, in time for the 2010 growing season.

**-Figures on Page 10-**



## Cultivar Spotlight: ‘Cynthiana’ (aka Norton)

Eric T. Stafne

Is it ‘Cynthiana’ or is it ‘Norton’? Or is it both? Well, the debate goes on. The origin of ‘Cynthiana’ is still largely unknown. It is mostly *Vitis aestivalis*, but may also have *V. labrusca* and *V. vinifera* in its lineage. Some folks just prefer one name over another. In Oklahoma, ‘Cynthiana’ is more commonly used, so I will stick with that name. ‘Cynthiana’ is a hardy and vigorous vine once it gets established. It can be slow to get established however. Crop levels tend to be moderate to high with very small cluster sizes. The vine is resistant to most diseases, including black rot, powdery mildew, botrytis, phomopsis, crown gall, and anthracnose. It is moderately susceptible to downy mildew. One of the downsides to ‘Cynthiana’ is that it is sensitive to sulfur, so that may not be used as an organic disease control method for this cultivar. It also does not readily tolerate high pH soils and is extremely sensitive to 2,4-D. It roots poorly and is difficult to propagate. The fruit has high levels of anthocyanins which have been linked to health-based properties. Making wine from ‘Cynthiana’ can be challenging, as it typically has fairly high pH and titratable acidity. Here is a good paper on growing and making wine from ‘Cynthiana’ by Dr. Gary Main and the University of Arkansas:

<http://www.uark.edu/depts/ifse/grapeprog/articles/ahis05wg.pdf>



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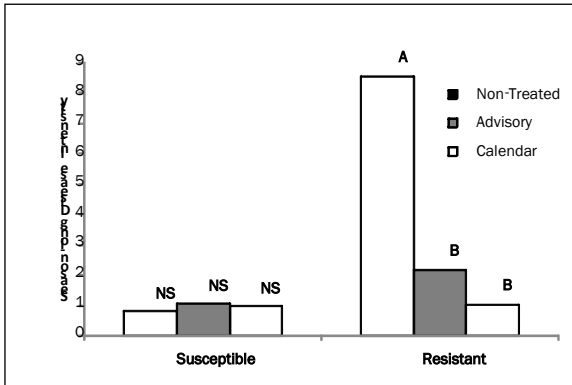
We welcome feedback and suggestions. Any responses can be mailed or emailed to the addresses on the left. We will strive to provide useful, pertinent, and timely information.

Initially this newsletter will be published 4 times per year in January, April, July, and October. If warranted the timing can be amended to better serve the grape growers and wine makers of Oklahoma.

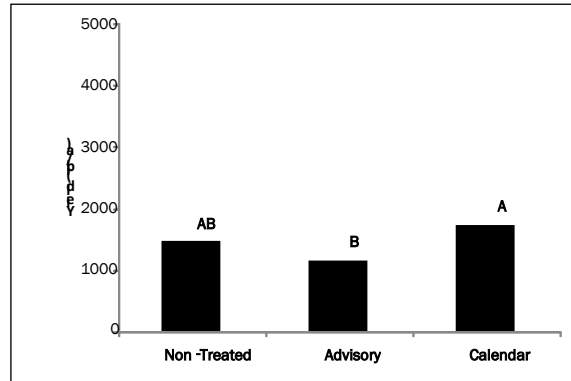


'Vigneron' is the French word for someone who grows grapes for use in wine making.

## Black Rot Advisory continued (Figures)



**Figure 1.** Standardized fruit disease intensity for two grape cultivars ('Cabernet Franc' and 'Vignoles') sprayed using three different spray protocols. Data are from Parson's Vineyard and Winery located in Shawnee OK. Mean separations on the resistant cultivar were performed using Fisher's protected LSD;  $R^2 = 0.70$ ;  $CV = 126$ ;  $P < 0.01$



**Figure 2.** Yield for grapes sprayed using three different spray protocols. Yield data from the resistant cultivar ('Vignoles') located at Parson's Vineyard and Winery located in Shawnee OK. Mean separations were performed using Fisher's protected LSD;  $R^2 = 0.67$ ;  $CV = 31$ ;  $P = 0.04$ .