

Le Vigneron

A newsletter for the grape growers and wine makers of Oklahoma

Volume I, Issue I

July-September 2006

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The Commitment of Oklahoma State University to the Grape and Wine Industry

Since the late 1800s, Oklahoma State University (then called Oklahoma A&M College) has been involved with viticulture throughout the state. However, the recent expansion of the wine-making industry has demanded that OSU address viticulture and enology issues with greater urgency. In 2000, Dr. Dean McCraw initiated the Grape Management Short Course, held at the Herman Hinrichs Conference Center at the OSU Perkins Fruit and Nut Experiment Station. The course continues and has had full enrollment since its inception. Involved with teaching this course are university professors and other individuals with ties to the industry. OSU strives to provide the best educational opportunities to address issues that concern Oklahoma grape growers and wine makers. Research also plays an important role in our viticultural and enological efforts and we will continue to expand these efforts. Great potential exists in Oklahoma for growing grapes and making wine of high quality and our team of experts at OSU will be in the vanguard to aid the industry in developing a strong, sustainable future.

Meet the OSU Viticulture and Enology Team

Currently, OSU-Stillwater has three experts in viticulture, enology, and entomology to assist you with any questions pertaining to the grape industry. We also conduct research and education in areas of variety selection, cultural management, wine quality, winery sanitation, integrated pest management, and other topics of interest throughout the state. Look inside this newsletter for more biographical information about the OSU experts.

Dr. Eric T. Stafne

Eric T. Stafne is an Assistant Professor and Extension Horticulturist at Oklahoma State University with responsibilities in pecans and fruit crops. Stafne has a 75% Extension and 25% research appointment. Originally from Michigan, Stafne received his B.S. degree in Forestry from Michigan State University in 1993. His graduate work was done at the University of Arkansas, where he completed his M.S. degree in Horticulture (1999) and Ph.D. in Plant Science (2005). Dr. Stafne's professional experience includes a stint as a U.S. Peace Corps agroforestry extension volunteer in Senegal, West Africa from 1994 to 1996, employment by the United States Department of Agriculture – Agricultural Research Service (USDA – ARS) at the Sugarcane Field Station in Canal Point, Florida as an agricultural research technician in the sugarcane breeding program, and as a Research Specialist in the small fruit breeding program under Dr. John R. Clark at the University of Arkansas. He was responsible for maintaining two grape breeding selection vineyards at the University of Arkansas, Fayetteville Experiment Station. Currently, he teaches the Grape Management Short Course and heads the experimental grape vineyard at the OSU Perkins Station.



Dr. Eric T. Stafne
Assistant Professor and Extension Horticulturist

Freeze Injury Observed on Grape Vines at Perkins and Stillwater

Eric T. Stafne

Significant freeze injury was seen throughout Oklahoma this past winter. We were fortunate enough to be able to rate two vineyards for injury in hopes of learning how different cultivars responded to the cold. Woodland Park Vineyard in Stillwater and the OSU Perkins Fruit and Nut Experiment Station were the two locations that were rated. There were two time periods that contributed to the damage observed — early December when temperatures dropped below 0 F and mid-March when fluctuating temperatures occurred while some vines were initiating growth.

Overall, Perkins saw little damage with the exception of own-rooted 'Shiraz' that had moderate injury. 'Shiraz' is not an especially cold hardy cultivar. However, the cold temperatures in December and March were not as devastating in Perkins as they were in Stillwater. At Stillwater, the damage was much more severe. Little injury was observed on 'Cynthiana' and most of the hybrids. However, cold damage was evident on most of the vinifera grapes, other than 'Riesling'. Some, like 'Chardonnay' were killed back to ground-level. This damage illustrates some of the inherent risk in growing grapes, especially vinifera, in Oklahoma.

The cold temperatures in early December likely killed buds and may have caused some of the injury observed later in the spring. The main splitting of trunks and cordons was probably due to the erratic temperatures in March and early April. Perkins had 5 nights below freezing in March, whereas Stillwater had 12. If I had to venture a guess as to the primary date of most injury it would be March 24, when the low was 22.9 F in both Perkins and Stillwater. Unfortunately, these events are not uncommon in Oklahoma, and injury is not specific only to vinifera cultivars, as evidenced by the picture to the right.



Trunk splitting on 'Chambourcin'

Oklahoma-tested, new cultivars released from Cornell University

Eric T. Stafne

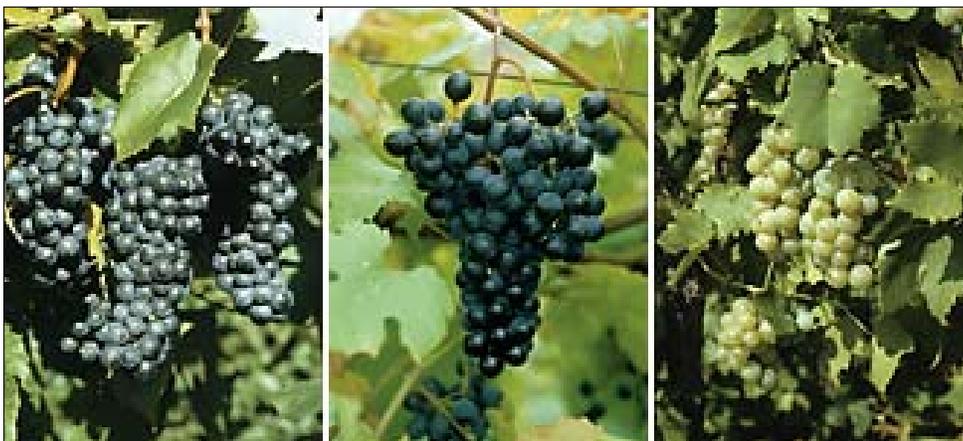
The three new grapes-'Noiret'(tm), 'Corot noir'(tm) and 'Valvin Muscat'(tm)-were released from the Cornell grape breeding program recently. These three cultivars have been observed at the OSU Perkins Experiment Station and results of that observation are reported below.

'Noiret'TM (pronounced "nwahr-ay"), a mid-season red wine grape, is a complex interspecific hybrid resulting from a cross made in 1973 between NY65.0467.08 and 'Steuben'. The wine made from it is reportedly free of the hybrid aromas typical of many other red hybrid grapes. The wine is richly colored and has notes of green and black pepper, with raspberry and mint aromas, and a fine tannin structure. Care should be taken to grow 'Noiret'TM on sites less susceptible to extreme winter temperatures and downy mildew. In Oklahoma, 'Noiret'TM ripens in late August with yields of 1 ton per acre at the OSU Perkins Experiment Station. It had an average pH of 4.01 and a titratable acidity of 0.43 with a brix measurement of 18.4.

'Corot noir'TM, a mid- to late-season red wine grape, is a complex interspecific hybrid resulting from a cross made in 1970 between Seyve Villard 18-307 and 'Steuben'. Wines made from 'Corot noir'TM are free of the hybrid aromas typical of many other red hybrid grapes, and can be used for varietal wine production or for blending. The distinctive red wine has a deep red color and attractive berry and cherry fruit aromas. 'Corot noir'TM ripened in late August in 2005 at Perkins, with a yield of 1 ton per acre. It had an average pH of 4.38 and a TA of 0.32 with a brix reading of 19.6.

'Valvin Muscat'TM is a mid-season white wine grape with a distinctive muscat flavor and aroma that is desirable for blending as well as for varietal wines. The complex interspecific hybrid grape resulted from a cross made in 1962 between Couderc 299-35 (an interspecific hybrid known as 'Muscat du Moulin') and 'Muscat Ottonel'. 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. This grape ripens in mid to late August at Perkins with a yield of 2 to 3 tons per acre. It had an average pH of 4.14 and a TA of 0.40 with a brix reading of 21.0.

Vines of the three new grapes are available from licensed commercial nurseries.



'Noiret'TM, 'Corot noir'TM and 'Valvin Muscat'TM

Dr. William G. McGlynn

William McGlynn is an Associate Professor and Horticultural Products Processing Specialist for the Department of Horticulture and Landscape Architecture and the Food and Agriculture Products Center. Dr. McGlynn received a B.A. degree from the University of California at Davis in 1979, an M.S. degree in Food Science from the University of Arkansas in 1989, and a Ph.D. in Food Science from the University of Arkansas in 1997. William came to work for the Food and Agricultural Products Research and Technology Center on the Stillwater campus of Oklahoma State University in May 1997 and is a faculty member in the Department of Horticulture and Landscape Architecture. William is responsible for the extension and research activities of the center relating to value-added processing of horticultural products. His specific research and extension responsibilities include providing technical assistance related to processing and improving the quality of grape and fruit wine products, investigating the winemaking potential of grape and fruit crops in Oklahoma, and researching the nutraceutical properties of horticultural food products.



Dr. William McGlynn

Associate Professor and Horticultural Products Processing Specialist

‘Rubaiyat’: An Old Cultivar with New Potential?

Eric T. Stafne

‘Rubaiyat’ was a cross between Seibel 5437 and ‘Bailey’ made at Oklahoma State University by Herman Hinrichs in 1952. ‘Rubaiyat’ is a dark blue-black grape that ripens in mid-August. The berries are medium-sized and round. The clusters are medium in size with a long shoulder. The vine has medium vigor and good to very good disease resistance. The juice is very dark red with about 19% sugars and tartaric acid levels of 0.63%, and quality is best when clusters are left to hang for sugar accumulation. Perhaps the greatest potential for ‘Rubaiyat’ is as a teinturier since it has the attribute of red flesh derived from its progenitor ‘Alicante Bouschet’, a parent of ‘Alicante Ganzin’. In observational trials in Oklahoma, ‘Rubaiyat’ compares favorably to ‘Chambourcin’ in quality and may outyield it. ‘Rubaiyat’ also has better winter hardiness than ‘Chambourcin’, judging from injury observed this past winter. A paper on ‘Rubaiyat’ will be published in the Journal of the American Pomological Society in October as well as a poster at the annual meeting of the American Society for Horticultural Science held in New Orleans in July.

Grape Workshops Successful, More to Come

Eric T. Stafne

So far, I have held three workshops for grape growers. Two of the workshops have been held at OSU-OKC with the assistance of David Gerken, as well as John Coleman of the OGGWMA. The first workshop was held in March at the OSU Perkins Experiment Station, where the topic was pruning for high curtain and VSP training systems. The second workshop was held in May at OSU-OKC and focused on trellis construction. Four rows of trellis were constructed during the workshop and one row of grapes were planted. The third workshop was held in July at OSU-OKC on grape vine propagation and grafting. So far for the OSU-OKC workshops we have been averaging about 20 participants. Future workshops may include weed control in the vineyard, IPM strategies for insect and disease control, organic and sustainable grape production, and an introduction to interspecific hybrid grapes. We look forward to seeing you in the future at these events.

Helping to Grow Oklahoma's Grape and Wine Industry: The OSU Food and Agricultural Products Center Research Winery and Enology Lab

William McGlynn

As part of Oklahoma State University's ongoing efforts in support of Oklahoma's grape and wine industry, the OSU Food and Ag. Products Center (FAPC) has recently begun work on a research winery and enology lab located within the Center's multi-purpose pilot-scale processing facilities. Approximately \$100,000 have been provided by OSU to fund stage one of this project; two thirds of the funds were awarded as the result of a successful proposal submitted to a competitive research initiative grant program sponsored by the OSU Division of Agriculture and Natural Resources. The remaining third of the funding was provided by FAPC matching dollars.

The goal of stage one is to create a fully functional research winery. This involves refurbishing and equipping approximately 800 square feet of pilot plant space to house fermentation tanks, bottling equipment, and specialized analytical equipment. Additional processing equipment will be procured for use in other processing areas. The expected initial processing load will be about 500 gallons/year; grapes will come primarily from the research vineyard in Perkins, Oklahoma. As feasible, equipment will be sized to simulate a 5000 gallon/year commercial winery operation. Equipment will be selected to maintain processing flexibility.

Juice and wine analysis capabilities will also be expanded as part of this project. When stage one is complete, standard lab analyses will include: pH and titratable acidity, volatile acidity, % soluble solids, free and total SO₂ concentration, alcohol content, color (absorbance @ 420/520nm), formal titration for fermentable nitrogen, total phenols, and anthocyanins. As resources permit, analytical capabilities will be expanded to include more specialized chemical and microbiological tests.

As of August 2006, the refurbishing of the pilot plant room that will serve as the main fermentation, bottling, and analytical lab is nearly complete. We expect to install equipment during the fall of 2006 and fully complete stage one plans by spring of 2007.

This new facility will be used for both research and Extension outreach activities such as workshops. Team members involved in the facility include personnel from the FAPC as well as OSU faculty from the Departments of Horticulture, Entomology and Plant Pathology, Biosystems and Agricultural Engineering, and Agricultural Economics. Research topics that have been discussed by team members include: the influence of cultivar on the quality of Oklahoma wines; the influence of cultural practices and vineyard location on the quality of Oklahoma wines; improving wine quality using Oklahoma-grown native and hybrid grape varieties; the influence of winemaking techniques on the quality of Oklahoma wines; and Incorporating fruits and herbs to create novel value-added wine products.

OSU and the FAPC are excited about the opportunities created by our new Research Winery and Enology Lab. We see it as a valuable investment in the future and fully expect it will greatly strengthen our efforts to assist Oklahoma's grape growing and wine making industry through technical assistance, Extension outreach, applied research projects, and enhanced educational opportunities.

List of Current FAPC workshops applicable to juice/wine industry

William McGlynn

1. Non-meat HACCP workshop.
2. Winery Sanitation Workshop.
3. Wine/juice Filtration Workshop.
4. Clean-in-place (CIP) Technology Workshop.

List of Potential FAPC workshops applicable to juice/wine industry:

1. Basic Wine Analysis Workshop (will definitely be offered, could be done in Fall of 2007).
2. Marketing Oklahoma Wines Workshop (could be developed/held if sufficient interest exists).

Contact Dr. McGlynn for more information on all of the FAPC workshops.

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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.

Dr. Phillip G. Mulder, Jr.

Phillip G. Mulder, Jr. is a Professor and Extension Coordinator for the Department of Entomology and Plant Pathology. Dr. Mulder was hired initially as Area Extension Entomology Specialist in 1985 with 100% OCES appointment. In 1995, he relocated to the Stillwater OSU campus with statewide responsibilities. His responsibilities include; providing statewide leadership for extension entomology educational programs related to alfalfa, peanuts, commercial and homeowner fruit and nut trees, soybeans and grapes. Dr. Mulder also conducts applied research on the biology, impact, and management of insect populations in pecan, grapes, alfalfa, peanuts, and peaches. His contributions are instrumental to the success of the Grape Management Short Course held at Perkins each year. During the Short Course he holds lectures on various grape insects and the problems they cause, such as phylloxera, Japanese beetle, green June beetle, grape flea beetle, grape berry moth, and grape root borer. His participation with grape growers throughout the state has been a significant component to Oklahoma State University's grape research and extension efforts.



Dr. Phillip G. Mulder, Jr.
Professor and Extension Entomologist