

# Le Vigneron

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

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## A New Year Begins...

...and none too soon for the majority of us. The weather put us through significant trials and tribulations this past year. A much too warm March was immediately followed by freezing April conditions, then an overabundance of rain (although this one is hard to criticize too much knowing that we just came out of a drought) until late July when the waterworks turned off and hot, dry conditions prevailed. No rain during harvest is good, but I suspect quality of fruit this year did not lead to a "vintage" year for most of us. I know in our vineyard at Perkins many of the vinifera grapes made a poor, late crop or no crop at all. The real standouts for us were 'Cynthiana' and 'Chambourcin' (although 'Chambourcin' provided a good bit of sustenance for the bird population). Last year was great for diseases and other strange, anomalous occurrences. I saw more diseases this past year than any other (of course I have only been here since 2005) due to the constant rains and our inability to spray because of the them. Crown gall was also a serious problem. Many growers complained to me that their young vines developed crown gall. Luckily, we now have a new plant pathologist on staff at OSU to help with this issue. Remember that crown gall usually is manifested by cold damage. Your vine can have the bacteria and not show any symptoms until damaging conditions occur. Many of you also saw an uncommon phenomenon called aerial rooting on cordons and/or trunks. Not much is known on this condition, but it is often associated with cold damage. Andrew Puckette, my Masters student, is doing some research in this area to try to determine if some vines are more susceptible to aerial rooting than others. But, enough about last year. The upcoming year always brings with it new hopes and dreams. Let us hear from you about your progress and any needs that you might have in the area of viticulture (or any other fruit crop for that matter). So, until next time, read on vigneron, read on.

## 2008 OSU Grape Management Short Course Update

**Eric T. Stafne**

Wow, how time flies! It seems like I just finished up the 2007 Grape Management Short Course and now it is time to start the 2008 version. If you (or someone you know) is interested in signing up for the class, here is the link to the registration form ([http://osu-ns03.cis.okstate.edu/tools/webtools.nsf/Images/horttips/\\$FILE/2008grape.pdf](http://osu-ns03.cis.okstate.edu/tools/webtools.nsf/Images/horttips/$FILE/2008grape.pdf)). Just copy and paste the link into your web browser and voila! The course set-up will continue to be the same and we hope to have another good class this year. The Grape Management Short Course also satisfies a requirement of the Viticulture Education Program (see page 4). I look forward to seeing you in the new class.

## Pierce's Disease Reported in Kentucky

**Eric T. Stafne**

In the November 2007 issue of *The Grower* ([www.growermagazine.com](http://www.growermagazine.com)), University of Kentucky researchers reported that Pierce's disease (PD) was confirmed on 'Vidal Blanc'. This is the second time PD has been found in Kentucky. The location of the PD-infected vine was in Lexington. Lexington is approximately in the same hardiness zone as northern Oklahoma. So far, no cases of PD have been found in Oklahoma. A few years ago, Dr. Phil Mulder and Dr. Sharon Von Broembsen did a survey and found no evidence of the disease or of its main vector, the glassy-winged sharpshooter. The causal bacteria of the disease is *Xylella fastidiosa*. However, *Xylella* is not exclusive to grapes. In fact, many species of plants are susceptible to *Xylella*, although there are different strains of the bacteria. Some strains may be similar enough to cross infect different hosts. Much work still needs to be done in this area. States like Texas and California that have been severely impacted by the disease have put forth strong efforts in research and outreach to get a handle on the problem. Texas A&M recently opened the Texas Pierce's Disease Research and Extension Program facility in Fredericksburg to deal with the disease. It is a cooperative effort that includes scientist from Texas A&M, University of Texas-Tyler, the University of Houston-Downtown, and Texas Tech University.

## Upcoming Wineries Unlimited Meeting

March 4-7, 2008: Wineries Unlimited, the largest wine industry trade show and seminar program east of the Rockies, will celebrate its 33rd year, the second in a row at the new venue of the Valley Forge Convention Center in King of Prussia, PA, with a larger trade show than was possible at the Lancaster Host in the past. Four days of seminars supplement the trade show (on 3/5-6), with wine tastings and social events, including the second annual ASEV/ES scholarship auction fundraiser. Keynote speaker at the Wine Theme Lunch will be Steve Burns, president of consulting firm O'Donnell-Lane, LLC. For program details, exhibitor list and online registration, visit [www.wineriesunlimited.com](http://www.wineriesunlimited.com).

March 7, 2008: Issues in Winery Layout and Design seminar at Wineries Unlimited, Valley Forge Convention Center, King of Prussia, PA. Coordinated by Dr. Bruce Zoecklein, Head, Enology-Grape Chemistry Group, Virginia Tech. This day-long program will cover practical topics of interest to those starting a new winery, or expanding an existing facility. Industry and winery architects will discuss and review Winery Design & Examples, Integration of Winery Process Equipment, Layout and Design, and Green Design Considerations. For more information and online registration, visit [www.wineriesunlimited.com](http://www.wineriesunlimited.com).

## New Publications Now Available

**Eric T. Stafne**

A new grape publication is now available as a pdf file here: (<http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-4626/E-999web.pdf>). The title of this publication is Profile and Challenges of the Oklahoma Grape Industry. Essentially this is a compilation of things I learned from the survey done in 2006 and information gleaned from the research trials at Perkins and Stillwater. A hardcopy can be ordered as well from me. The cost of the hardcopy is \$3.00 to cover printing and shipping. Some folks have an opposition to paying for extension materials from OSU. I understand that opposition and for a long time I felt the same. Why should my tax dollars pay for something twice? Well, now as I sit in a position to publish these materials instead of just reading them, I know more about how the system works. What your (and my) tax dollars pay for are my intellectual and physical efforts to create and write the document. Unfortunately, they do not pay for the cost to print the publication, to advertise the publication, or the shipping cost of the publication. These costs are covered through my ability to attract outside funding. So, when I charge a nominal sum for a publication it is only covering the cost of printing and shipping the document, not the weeks or months that I spent developing and writing it. For those of you who don't mind reading a publication electronically as a .pdf, they still remain free. No printing and no shipping (at least for this particular publication)!

Another publication that some of you may find beneficial is called the Oklahoman's Guide to Growing Fruits, Nuts, and Vegetables (<http://home.okstate.edu/Okstate/dasnr/hort/hortlahome.nsf/toc/handbook>). There is also a charge for this publication and it is not currently available online. It is 165 pages long and is spiral bound for your reading pleasure. This guide covers the basics of growing many fruits and vegetables (although not all potential crops are included). The price (\$10.00) is a bargain for what you get. The primary audience is folks who want to grow crops that they haven't tried before.

## Oklahoma-Arkansas Horticulture Industries Show 2008 Recap

**Eric T. Stafne**

The Grape Day at the Oklahoma-Arkansas Horticulture Industries Show was moderately well attended. I would estimate between 20—30 grape growers took advantage of this educational opportunity. The morning sessions covered Winery Sanitation (Dr. William McGlynn) and the health benefits of grape juice (Dr. Edralin Lucas) and wine (Dr. David Tuggle). The early afternoon sessions were related to insects (Dr. Donn Johnson, Sandra Sleezer, and Dr. Phil Mulder) and diseases (Dr. Damon Smith). By late afternoon the crowd had thinned some, but pruning and thinning were covered (Chris Lake) as were interspecific hybrid grapes (Dr. Eric Stafne). Overall, I think the individuals that did attend were enthusiastic about the experience, but I was somewhat disappointed by the turnout. To contrast the crowd we had on Friday for the Fruit School and Saturday for the Grape Day, at one time on Friday we had 90 or more attendees. The most we had on Saturday was around 40. So, the next time I am planning the fruit session (2010) I will need to evaluate whether a grape day is needed or just a couple sessions. I believe this could become a great forum for grape-related educational programming, but the attendance left me wondering whether or not to continue pursuing a dedicated day to grapes.

## Workshops and Other Educational Opportunities

**Eric T. Stafne**

Hopefully you all took advantage of the grape program at the Oklahoma-Arkansas Horticulture Industries Show that was held in Tulsa, January 4 and 5. If you didn't, it is a yearly show that rotates between Oklahoma and Arkansas. It is always full of good information and also allows for networking with other growers as well as experts in horticulture. Another opportunity is a **Grape Pruning Workshop** to be held at the Cimarron Valley Research Station in Perkins, Oklahoma starting at 4pm and running until 6pm on February 29, 2008. If you need more information (such as directions, cost, etc.) contact me. I am also working on a new online workshop. I have not worked out all of the program yet, but I will give more details in the next issue. Also, don't forget about educational opportunities that are offered by the Oklahoma Grape Growers' and Wine Makers' Association, as well as regional groups and wineries. If you are interested in hosting a workshop, contact me and we can set it up. On March 6, there will be a **Small Fruit Workshop** held in Ardmore at the Noble Foundation. This workshop will cover such fruits as blackberries, blueberries, raspberries, and grapes. Contact me for more information.

## **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**

**Dept. of Horticulture and Landscape Architecture**

**360 Agricultural Hall**

**Oklahoma State University**

**Stillwater, OK 74078-6027**

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# Some Plant Pathological Basics for Grape Disease Management

**Damon L. Smith**

Grapes have suffered from diseases since humans began cultivating vines. In the 18<sup>th</sup> and 19<sup>th</sup> centuries powdery mildew was probably the most destructive disease of grapes grown in Europe. As a result, scientists and farmers alike initiated field trials in an effort to develop management strategies for the disease. These early pioneers of plant pathology realized that some basic knowledge of plant disease pathogens and factors effecting their development, were critical in formulating effective plant disease management strategies.

The plant disease triangle concept is one of the most fundamental principles of plant pathology and can be a useful tool for any disease management practitioner when developing a control strategy. The disease triangle concept states that plant disease will occur if and only if the three components of the triangle are fulfilled at the same time. The three components of the triangle are as follows: the presence of a susceptible host plant; a pathogen (e.g. fungus) able to contact the host; and environmental conditions that favor disease development either by being favorable for growth of the pathogen and/or by inducing stress in the host. If any one of these components are missing, plant disease will not occur. Therefore, by focusing efforts on one or several components of the triangle, a practitioner can develop a simple and sound disease management plan.

Efforts focused on the host component of the triangle include selecting resistant cultivars, preventing stress in the host by carefully choosing the planting site, and developing a stress management plan that includes careful attention to nutrient and water requirements of the host. Efforts to modify the environmental component have focused on proper planting site, and adequate canopy management. By promoting good airflow in the canopy and increased sun exposure, disease causing canopy humidity and moisture can be reduced. Pathogen directed efforts can include exclusion, sanitation, or protection of the host from the pathogen. The latter management strategy involves the application of pesticides (usually fungicides).

Fungicides come in two types, protectants or systemics. Protectants will simply provide protection against new infections, while systemic fungicides can slow or stop infections in their very early stages, in addition to their protectant activity. Typically protectant fungicides will have residual mobility, meaning that the fungicides will adhere only to the parts they are applied and stay only on those parts. This type of fungicide will not be translocated to other parts of the plant or to new parts of the plant. Protectants can be washed from plant tissue if substantial rain events occur. New plant growth after the application of the protectant fungicide will also be unprotected. Systemic fungicides have the capability to be translocated to other parts of the plant. If given adequate time for absorption into plant tissue, systemic fungicides are resistant from washing off plant tissue. Depending on the fungicide type and mobility, the time of use can be classified as prophylactic or eradicant. Because of the diversity of modern fungicides available to grape growers, care should be taken in choosing the proper compound. The target pathogen, the disease cycle and the prevailing weather conditions should be considered before a fungicide is chosen.

Regardless of the type or mobility of a fungicide, no pesticide will 'heal' existing lesions. Practitioners should always strive to develop a proactive fungicide application plan for several reasons. Lesion development is continuous for many pathogens when environmental conditions are favorable for disease. While symptoms may not be visibly present, the pathogen may have already infected resulting in an incubating lesion. In this situation, protectant fungicides will be rendered useless. Furthermore, if infections have already occurred, the window of opportunity for systemic fungicide applications can be small (3-4 days) or nonexistent for many fungicides. Application of fungicide within the window of opportunity may not be possible due to weather conditions that are not conducive for spraying over extended periods of time.

## Some general pruning rules that I have learned over the years...

**Mark Chien — Winegrape Educator, Penn State University**

Keep trellis full, vines in full production for maximum balance yield, quality and profit

Anticipate. If something goes away how will you most quickly replace it

Efficiency: prune well to maximize all vineyard operations and practices

Have a concept of what you are pruning towards visually, philosophically and economically

Prune for crop first, position second and always for vine shape, think a year or 2 ahead

Stop, look and think: check and select fruiting wood first then prune around it

Measure twice, cut once rule. Once you make the cut it's gone.

Prune for sun canes

Do not use laterals for fruiting wood

Make clean cuts, close to the old wood

When disbudding use the flat side of the shear against the older wood

Check wood quality, especially in cane pruning for poor or dead wood

Use the right tool for the right cut, if you are twisting or laboring you do not have the right tool

Leave  $\frac{3}{4}$  - 1" from apical bud to cut on canes and spurs

Cut with angle down and away from tip

Do not let spurs get too long, look for and retain replacement shoots during the growing season.

Leave 6" between end of shoots and canes

Prune to  $\frac{5}{8}$  inch or pencil diameter

Vigorous vines: more buds. Weak vines: fewer buds

Check for trunk diseases: Eutypa, Botryosphaeria, Crown gall, etc.

Keep pruning tool clean, sharp and oiled

Sanitize if there is disease: clorox in a spray bottle

Remove cluster mummies from the vine and the vineyard

Do not cut wires or stakes

Leave extra canes or spurs, double prune, insurance

Be careful when cutting away laterals, do not cut the bud.

Remove old tendrils

Remove old ties and junk on the trellis

Mark vines with problems or that need to be re-visited right away

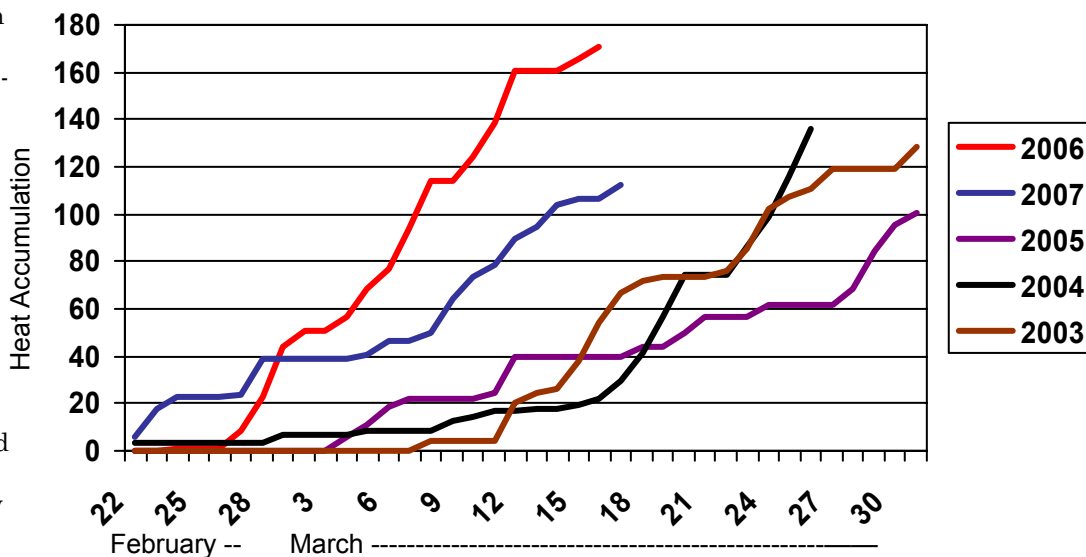
Let only a very experienced, trusted crew member or leader command a pruning crew. If there are any doubts about the skill of a crew, you must be in the field working beside them to insure quality. It is not enough to work with them for a few minutes or an hour in the morning and leave.

## Some Observations on Chardonnay Budbreak

Eric T. Stafne

I am fascinated by the interaction of environment and plants. Those of us in science call that the genotype by environment interaction. This is the reason why it takes so long for most plant cultivars to be released to the public, because they must be tested in multiple environments to ensure a reasonable stability of traits. There are also cultivar differences within a single environment, as well as year-to-year variation within a single environment. The latter is what I will discuss here. As we all know, the temperatures in Oklahoma vary from year to year. Some winters are cold, some are warm, some springs are cool, some are hot. All of this plays a part into when grape vines break bud in the spring. Generally, budbreak is a predictable event (although precision of the timing is uncertain). We know that 'Chardonnay' is going to have the earliest budbreak of any cultivar (there may be a few exceptions). But what is it that determines when, exactly, a vine will break bud to expose itself to the harsh elements that surely lie ahead? In the viticulture literature it is often reported that when ambient temperatures average 50 °F (Max Temp + Min Temp / 2), buds will start opening. One paper I read stated that the temperature should average at least 50 °F for 5 consecutive days and not followed by any significant cold events in order for budbreak to occur. In Oklahoma that does not usually occur until late March. Based on the records we keep at the experiment station in Perkins, I looked at the occurrence of 5 consecutive days of at least 50 °F and then looked at the timing of budbreak (determined as when 50% of all buds have opened). The proposed model is correct, but crude. From 2003-2007 it took anywhere from 1 to 14 days after the 5 consecutive days for budbreak. OK, but not very precise. So, I thought about it another way. There are many factors that can affect timing of budbreak like site, aspect, latitude, pruning, and other management. However, even though the budbreak timing can be somewhat manipulated, it is under genetic control — meaning that no matter where you plant the vines or how you manage them, 'Chardonnay' will always breakbud earlier than 'Cabernet Sauvignon'. But, how do the vines recognize when to break bud in the spring? There must be environmental cues that lead to budbreak. Temperature, of course is one. But, then again, we have a lot of days that average 50 °F during December, January, and February. Why don't they start during those months? Not enough consecutive days is one reason, but I believe another reason is day length. The vines just don't get enough light, combined with warm temperatures, to move the process forward. Grape vines like to have at least 12 hours of light to begin their growth. This occurs on February 22 at Perkins. Therefore, I started looking at temperatures beginning on February 22 through budbreak to see if temperature accumulation was the key. The graph below shows the accumulated heat from February 22 through budbreak (where the line stops) for 'Chardonnay' from 2003-2007.

This graph shows that the final heat accumulation can be anywhere from 100 degrees to 170 degrees. Somewhat crude as well — about as good as the 5 consecutive days. It was then that I began looking a little more critically at the data in front of me and thought what if it is not necessary the total amount of heat accumulated, but the number of days that heating occurs? This line of thinking yielded something interesting. At this point it is only a theory and only worked out with a small data set for one cultivar (so in other words don't bet the life savings on it), but I encourage those of you with 'Chardonnay' to try it and see if it works for you: Start on February 22nd, mark the first day that hits > 51.5 °F average on or after that date, count every day after that if the average temperature is > 51.5 °F. At Perkins from 2003-2007 it was exactly 13 days for all years except 2004 (14) with average temperatures > 51.5 °F that budbreak occurred. This will likely vary some, maybe between 13-15 days. I also did this for Clarksville, Arkansas with data from 2003. It was 15 days. In the future I will do this for the other cultivars at Perkins and perhaps also go back to historical data to predict when the budbreak would have occurred. It will be interesting to see if this holds true in the future.



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**OKLAHOMA STATE UNIVERSITY AND  
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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.

## **An Interview with the First Viticulture Education Program Student**

**What is your name, where do you live, and what is the name of your vineyard?** *Dianne M. Stowers, Sand Springs, OK, Tre Sorelle Vineyard*

**What grape varieties do you grow? Why did you choose those varieties?** *Roussanne and Barbera. I chose them because I love the taste of Roussanne and because of similarities in climate and altitude to my own area.*

**What is your background in viticulture (grape growing)? How did you get interested?** *I became interested in wines in 2002, made friends with a couple of California viticulturists, spent some time in Napa Valley and became hooked on grapes. Have always loved to grow.....anything and everything!*

**How did you learn about the Viticulture Education Program offered by Oklahoma State University? OSU is THE place to go in Oklahoma for any kind of agricultural training, so I simply watched and waited until a relevant program was offered. In 2005, I attended the OSU short course in viticulture, was impressed with a couple of the instructors. The next year, I met Dr. Eric Stafne and saw that he intended to push the OSU program forward. I'm an OU alumnus who's now addicted to OSU's ag programs!**

**Have you done prior education through other programs?** *Not in viticulture. Have a couple of Fine Arts degrees from OU.*

**What attracted you to this program and what you perceive as the potential benefits?** *OSU is Oklahoma's center of agricultural life and I think the best way to keep moving forward with viticulture in this state is to stay in touch with OSU.*

**What do you think the future of viticulture in Oklahoma will be?** *Long-range, slow progress toward a logical goal. There are plenty of political barriers to profitable viticulture in this state. We're facing a real struggle that will eventually be resolved in favor of the consumer.*

**Any other words of wisdom for the readers of 'Le Vigneron'?** *Listen to OSU and watch your vines. To learn how to grow grapes, you must grow grapes, read, consult experts, and be very brave in regard to the Oklahoma climate.*