

Le Vigneron

A newsletter for the grape growers and wine makers of Oklahoma

Volume 4, issue 1

January-March 2009

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A New Year Dawning

The new year always brings promise of eternal hope — no deep winter freezes, no spring frosts, no insect or disease pestilence, and no harvest rains. Of course, hope springs eternal in the beginning days of a new year, just like a fresh fallen snow before it melts away. These days at OSU we have a lot of new projects going on. One just completed recently was the publication of *A Pocket Guide to Oklahoma Grape Diseases, Insects, and Other Disorders*. We are also working on a grape growers handbook for Oklahoma, which should be completed sometime in 2009. The Grape Management Short Course will continue on in 2009. Last year we completed a brief survey of how well the course fit the needs of the students and I think it came out very well. Once again we will be holding pruning workshops plus a new blackberry workshop in the spring. In 2009, OSU will be hosting an international meeting for Viticulture and Enology Extension Specialists. It will be held in Oklahoma City in April. This annual meeting will bring in some of the top experts in the fields of viticulture and enology to chart a course for improved education in those fields. For the first time a Wine Forum will be held in Oklahoma on the campus of Oklahoma State University. Don't forget about the Midwest Grape and Wine Conference in Missouri as well. There are so many great things happening in the coming year that it almost feels like the dawning of a new age in Oklahoma viticulture and enology. Let's ride the wave together.

2009 OSU Grape Management Short Course Update

Eric T. Stafne

Another year of the OSU Grape Management Short Course is ready to go. Here is the site for the registration and brochure:

<http://www.grapes.okstate.edu/PDFs/2009/09grapemgmt.pdf>.

We are excited to bring you a well-grounded education in viticulture. Tell your friends who are interested in an immersive experience in grape production. We look forward to seeing you in class this year!

2009 Midwest Grape & Wine Conference

Tan-Tar-A Resort, Osage Beach, MO

February 7-9, 2009

Wine professionals, wine grape growers and wine lovers will gather at Tan-Tar-A resort at the Lake of the Ozarks for the 2009 Midwest Grape & Wine Conference February 7 - 9, 2009. Brought to you by the Missouri Vintner's Association and the Missouri Wine & Grape Board.

This year's conference, which is focused on sustainability in wineries and vineyards, will feature three full days of informative viticulture, enology and marketing sessions, a deluxe trade show and seven course Midwest dinner—the **Grand Banquet**.

For more information, visit www.midwestgrapeandwineconference.com

First Oklahoma Wine Forum Scheduled

Julie Barnard

The School of Hotel and Restaurant Administration, assisted by volunteer chairs Steven and Sue Gerkin, is planning the inaugural Oklahoma Wine Forum for April 3-4, 2009, on OSU's Stillwater campus.

OSU alumni and vintners Marilynn and Carl Thoma created the Oklahoma Wine Forum to promote wine's role with food and educate students and the public about wine's contribution to a healthy lifestyle when used in moderation.

Forum participants, including students, wine professionals and wine enthusiasts, will attend two days of educational seminars, wine tastings and vintner dinners. A celebrity chef dinner and live auction will conclude the activities. Funds raised from the Oklahoma Wine Forum will provide scholarships for students in the School of Hotel and Restaurant Administration.

"The Oklahoma Wine Forum is in keeping with our mission to educate our students and to extend educational events to the community. The funds the event raises will also expand student opportunities," says Richard Ghiselli, head of the school. "Education distinguishes the forum from other wine events and festivals."

The keynote speaker will be Tim Hanni, one of the wine industry's top tier experts, from Napa, Calif. A wine adviser to hotels and restaurants and owner of WineQuest, he will share his popular seminar "Why You Like What You Like" during one of the educational sessions.

Hanni holds the Master of Wine title, considered the highest accolade in the international wine industry. He is one of only two Americans to complete the examination. The professionally trained chef is also a certified wine educator and sits on the national board of the American Institute of Wine and Food.

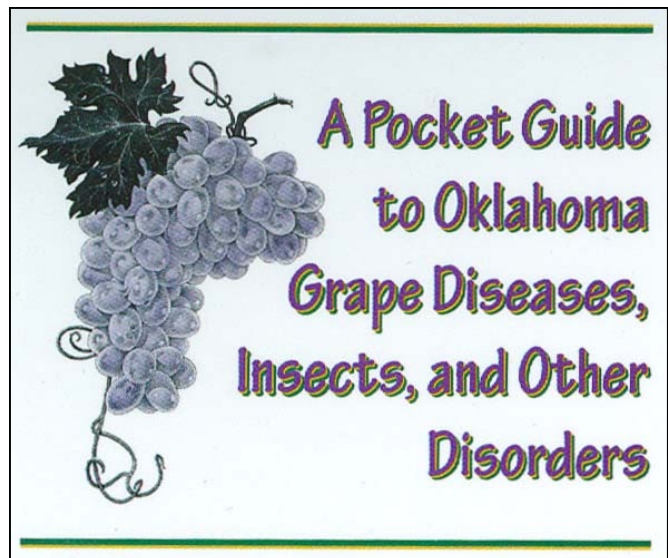
"Our School of Hotel and Restaurant Administration is a leader in undergraduate education, and its graduate program is internationally recognized," says Ghiselli. "The Oklahoma Wine Forum can further those reputations."

For more information on attending the Oklahoma Wine Forum, please see the website: www.ches.okstate.edu/wineforum or call 405-744-6713.

Pocket Guide to Grape Diseases, Insects and Other Disorders

Eric T. Stafne

Just published in late 2008, *A Pocket Guide to Oklahoma Grape Diseases, Insects, and Other Disorders* represents the most common pests of grapes in Oklahoma. This publication was funded by the Team Initiative Program (TIP) of the Oklahoma Cooperative Extension Service and the Oklahoma Agricultural Experiment Station, as well as the OSU Integrated Pest Management Program. Currently, I have a very limited number of copies. All students that attend the 2009 Grape Management Short Course will receive a copy. After that, remaining copies will be distributed on a first-come, first-served basis. With the initial publication of 100 copies, there is no charge; however, beyond that amount we will need to collect for publication and mailing costs. Please contact me if you are interested in this publication.



2009 Midwest Small Fruit and Grape Spray Guide

Eric T. Stafne

The *2009 Midwest Small Fruit and Grape Spray Guide* is now available. I have ordered 125 copies from Purdue University (where the publication is printed). All attendees of the 2009 OSU Grape Management Short Course will receive a copy, as will attendees of the upcoming Sustainable Blackberry Workshop to be held April 8, 2009 at the Cimarron Valley Research Station in Perkins. This guide is a fantastic resource that I would encourage every grape grower to use. It not only covers grapes, but also brambles, blueberries, and strawberries. This publication is also available online at this address: <http://hort.agriculture.purdue.edu/pdfs/09SprayGuide.pdf>. (This site may not be live at the time of this newsletter, but should be in early 2009). After I have set aside enough copies for the short course and the blackberry workshop, I will be able to distribute extra copies for a nominal charge. Contact me if you'd like to receive one.

Upcoming Workshops

Eric T. Stafne

In 2009, there will be two planned **grape pruning** workshops. The first will be held in Oklahoma City at OSU-OKC on February 19, 2009. The second will be held at the OSU Cimarron Valley Research Station at Perkins, February 24th. Keep an eye on our website for times or contact me. We will cover spur pruning on high curtain and VSP training systems. In the past I have held these workshops in the late afternoon, but may try a morning time this year. If you have a preference let me know.

A new significant workshop is the **Sustainable Blackberry Workshop** to be held at Perkins on April 8, 2009. This workshop is being partially funded by the North American Bramble Growers Research Foundation. It is a half-day workshop that will include cultivar selection, fertilizer application and weed control, site selection, irrigation design, insect and disease control, health properties, economics, and a current grower perspective. View the registration and schedule brochure online here:

<http://www.hortla.okstate.edu/pdf/09blackberry.pdf>. There is a \$25 fee to attend, but literature will be provided as well as the potential for interacting with presenters and networking with current growers. If you are interested in growing blackberries then you should not miss this unique opportunity. Attendance is limited to 50, so sign up early!

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) or write to:

Viticulture Education Program

c/o Ms. Stephanie Larimer

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Understanding Cooperative Extension

Eric T. Stafne

In the last issue, I covered what Land Grant Institutions were, how they came into being and their importance to agriculturists. Another unique aspect of Land Grant institutions is the Cooperative Extension Service. Not all universities have this tremendous resource available. Yes, even in Oklahoma, we get fans (and even alumni) from the “other” school soliciting our advice; grudgingly, I’m sure, but that is the great thing about cooperative extension – every person in every state has access, regardless of affiliation.

History of Cooperative Extension

As we discussed last time, the Morrill Act of 1862 established land-grant universities to educate citizens in agriculture and other practical professions. The idea of Extension was formalized in 1914, when the Smith-Lever Act established the partnership between the agricultural colleges and the U.S. Department of Agriculture (USDA) to provide for cooperative agricultural extension work. Some of the major objectives for this agricultural extension work were to develop practical applications of research knowledge and provide instruction and practical demonstrations of existing and improved agricultural practices.

The Smith-Lever Act mandated that the Federal Government provide each state with funds based on a population-related formula. The 1890 Land Grant institutions do not receive Smith-Lever funds, but other programs have been created to help advance their extension efforts. Today, the Cooperative State Research Education and Extension Service (CSREES; www.csrees.usda.gov), through the USDA, distributes these funds annually.

Cooperative Extension played an important role in the United States during the 1930’s and 1940’s. During the Great Depression, state colleges and the USDA emphasized farm management for individual farmers. Extension agents taught farmers about marketing and helped farm groups organize cooperatives that assisted many farm families during those years of economic depression and drought. World War II followed this period, in which the extension service worked with farmers to increase production of agricultural products essential to the war effort. Out of this effort rose the Victory Garden program was one of the most popular programs during the early to mid 1940’s (this is especially gratifying to report being a horticulture extension specialist!). Millions of families planted victory gardens during these trying war years to produce home-grown fruit and vegetables – all through the assistance of the Cooperative Extension Service.

Since 1950 the number of farms in the U.S. has declined; however, the remaining farms have a larger average acreage than they did several decades ago. Farm production has also increased to the point where one farmer today supports the food needs of roughly 150 U.S. citizens. The Cooperative Extension Service played a significant role in this increased productivity because of technology transfer of increased mechanization, commercial fertilizers, new hybrid seeds, and other technologies.

-Continued on Page 6-

Cooperative Extension Today

Today, Cooperative Extension works in six major areas, including 4-H Youth Development, Leadership Development, Natural Resources, Family and Consumer Sciences, Community and Economic Development, and, of course, Agriculture. However, as the population dynamic of the United States continues to evolve, the Cooperative Extension Service must adapt to new situations with fewer resources.

Land Grant institutions must not only be leaders in research and teaching, but they must also have an educational outlet for their resources that reaches the general public. This is often satisfied through non-formal, non-credit programs taught by individuals involved with Cooperative Extension. As an example, I teach two crop management short courses (pecan and grape), as well as several workshops, Master Gardener trainings, and field days. These types of programs are usually developed and taught by the thousands of county, regional, and state level extension personnel that have the directive to bring Land Grant expertise to the local level.

The Cooperative Extension System was created by Congress nearly a century ago to address the rural and agricultural issues most Americans faced that the time. In 1914, a majority of the U.S. population lived in rural areas and most of them relied on farming to make a living. Cooperative Extension helped direct the evolution of American agriculture, which led to significant increases in farm productivity. So, obviously the cooperative extension service operating through the Land Grant institutions have played a major role in where we stand now as a country (and not just agriculturally). A recent study conducted in Oklahoma found that the annual impact of the Oklahoma Cooperative Extension Service and the Oklahoma Agricultural Experiment Station system could be measured in the billions of dollars – and that’s just in Oklahoma, imagine the total economic, social, and educational impact nationwide.

Advancements in agricultural research and the “extension” of those new discoveries have led to a new kind of society, one where a vast majority does not need to grow any type of food for their families. In some ways that is an enormous achievement, but increasingly the urbanized general public is ignorant of what Cooperative Extension is all about (or even that it exists at all). In Oklahoma, a great deal of the population still resides in rural areas, but many in the new population influx are coming from heavily urbanized states. What I see all too often is someone who finds me too late after wasting several thousand dollars planting a crop that has little or no chance for survival in our climate.

But is it their fault they don’t know Cooperative Extension exists?

I urge researchers, teachers, and growers alike, as representatives of the Cooperative Extension ideology, to find ways to head off these disasters through new and innovative ways of education, marketing, and promotion. One such method is the national Web site www.extension.org. Although just in its infancy, it may eventually provide us with the “drain-hole” portal for which everyone with a question is funneled to first. A lot of effort has been put into making this resource available, now we need to make it work.

As the old naval saying goes, “A rising tide raises all ships,” and I am a firm believer that educated producers and consumers will help any industry be more successful. So, I hope you all will make use of the Land Grant-based Cooperative Extension Service, and encourage your friends and neighbors to do the same. After all educating and relaying research information to producers and growers is the entire reason we exist.

Can Timing of Grape Budbreak Be Predicted Based on Temperature?

Eric T. Stafne

Earlier last year (2008) I was playing with some weather and budbreak data. Since frost is a significant issue on grapes because they sometimes break bud very early, I thought if I could create a method to roughly predict when a cultivar would break bud then a grower would have some potentially useful information. For example, if the model showed a very early budbreak in relation to average budbreak the grower may be able to delay pruning to compensate for potential frost losses; whereas if it showed a later than average budbreak there would be less concern for frost injury.

Budbreak in grape is dependent upon the accumulation of chilling temperatures in the winter along with the accumulation of heating temperatures in the spring, as well as day length. How and when these accumulations occur varies. In Oklahoma, we achieve plenty of chilling hours over the course of the winter for grapes. Regions such as Oklahoma have no worry about enough chilling, but rather our concern is heat accumulation. Most years this is a potential issue, but in years like 2007 when lots of heat accumulation occurred during times when frost (or worse, freeze) is still possible it creates a significant problem. In 2007, the earliest cultivars broke bud in mid-March. So, when the 2007 Easter Freeze moved in some cultivars escaped significant damage, but others were devastated. It was after that event that I began to think about how budbreak could be predicted, thus giving the grower a better idea of when to expect budbreak.

First, utilizing what I know of budbreak and how heating and chilling temperatures play a role, I had to make some assumptions. My first assumption was that the chilling requirement would be satisfied by March 1 (in grapes it is usually much earlier than this). My second assumption was that heat accumulation would be mostly satisfied during the month of March. In most years, average budbreak (I am speaking of 50% budbreak, not initial budbreak for this model) for 'Chardonnay' at Perkins is late March. The best model would be to use temperatures from March to predict budbreak, but since that doesn't do much good if you are already seeing the actual beginning of budbreak, I used temperatures from March 1 to March 15, plus the month of December of the preceding year. My decision to use December plus March 1-15 was based on statistical analysis which gave the best correlation to actual budbreak from 2003-2008 and predicted budbreak based on the model from Le Vigneron 3:1, where days over 51.5 °F from February 22 until budbreak for 2003-2008 were used to calculate budbreak for previous years. Therefore, with these assumptions, I could use already existing observational and weather data to find out if temperature and budbreak were correlated. I used the average mean temperature for December and March 1 through March 15 of each year from 1995 -2008 from the Oklahoma Mesonet on the Perkins station. I chose to use the average mean (instead of the average high or average low) because both high and low temperatures would affect the timing of budbreak. The average mean temperature incorporates both of these.

I also tested the correlation of budbreak and other temperature timeframes (November, December, January, February, and many combinations thereof), but December + March 1-15 showed the strongest relationship. My supposition of why December is important in this model rather than January or February is that the chilling requirement of grapes is probably satisfied in December, as well as the depth of dormancy the vine achieves, and heat is accumulated in March. Of course, this will not result in a definitive way to predict budbreak date because there are several other factors that could come into play; these other factors include: was the vine damaged by cold temperatures previously, has the vine been unduly stressed, the estimation of budbreak timing, the accuracy of the data takers, the limited amount of data and on and on. However, I believe a strong enough relationship exists that the predicted timing of budbreak can be estimated within a few days of actual timing of budbreak (at least at this location) although a good bit of variability cannot be accounted for within this model.

The correlation coefficient (*r*) essentially tells us the strength and direction of the linear relationship between two random variables. A value of 1.0 (or -1.0) is a perfect correlation and 0.0 means there is no relationship at all. In Table 1, the strongest relationship between budbreak date and average mean December + March 1-15 temperature is for 'Cynthiana', 'Cabernet Sauvignon', 'Sangiovese', and 'Chardonnay', all of which are over 0.74. The negative relationship indicates that as the March temperature increases, the budbreak date is earlier (decreases).

After I found that the December + March 1-15 temperature model was the best to use, I performed a linear regression analysis to get an equation for the slope of the line for the data. With this equation the budbreak can then be predicted based on the line. If the correlation coefficient was 1.0 then our prediction could be very accurate, but since many environmental, genetic, and human factors come into play we have some error that does not allow for perfection. Table 2 shows the linear regression equation that will determine the date of budbreak. For example, if the average mean temperature is 49 °F at March 15 for 'Chardonnay' then 50% budbreak is equal to $162.43 - 1.76 \times 49$. Therefore, budbreak will be on day 76 of the year (also called March 17). Of course that scenario isn't much good, because the predicted to actual time is not enough, but for most years it will work. Another example — if the temperature is 45 °F, then we can predict the budbreak date for all the cultivars: 'Viogner' = April 2, 'Cabernet Franc' = April 2, 'Merlot' = April 2, 'Shirz' = April 3, 'Malbec' = April 4, 'Pinot Gris' = April 3, 'Petit Verdot' = April 5, 'Ruby Cabernet' = April 5, 'Cynthiana' = April 9, 'Cabernet Sauvignon' = April 10, 'Chardonnay' = March 24, and 'Sangiovese' = April 1.

The steps to take to predict budbreak (based on the data presented here, realizing that location will play a role in the outcome):

1. Record daily high and low temperatures for the month of December and March 1-15, or look up the data from the nearest Oklahoma Mesonet site.
2. Calculate the daily average temperature (high + low / 2). Do this for all 31 days in December and March 1-15.
3. Average the temperatures (December 1 to December 31) + (March 1 to 15) / 2.
4. Find the equation for the cultivar you are growing in Table 2 (Sorry, data for all possible cultivars are not available).

Place your temperature results where the equation says (Temperature). Solve the equation. Remember to multiply before you subtract. Voila, you have an estimate of when budbreak should occur. I encourage you to try this at your vineyard.

Table 1. Budbreak date, average mean December + March 1-15 temperature (°F), and correlation coefficient by cultivar for 1995 – 2002 (predicted) and 2003 – 2008 (actual).

Cultivar	Year														r
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Viognier	84 ^z	102	94	103	94	84	102	99	97	89	95	97	80	107	-0.645
Cabernet Franc	84	102	94	103	94	84	102	99	97	92	95	93	82	105	-0.703
Merlot	84	102	94	103	94	84	102	99	99	90	95	93	82	103	-0.718
Shiraz	85	103	95	104	95	85	103	100	94	96	95	93	82	110	-0.668
Malbec	85	103	95	104	95	85	103	100	97	95	96	97	80	110	-0.624
Pinot Gris	85	103	95	104	95	85	103	100	97	98	95	93	82	106	-0.681
Petit Verdot	91	104	100	105	96	86	104	101	101	95	96	97	82	105	-0.711
Ruby Cabernet	91	104	100	105	96	86	104	101	103	97	98	93	82	108	-0.721
Cynthiana	94	108	107	111	99	92	109	104	104	95	98	100	90	108	-0.764
Cabernet Sauvignon	95	109	108	112	100	95	110	105	102	102	101	97	89	111	-0.753
Chardonnay	78	93	87	92	88	72	94	88	89	85	90	75	76	99	-0.742
Sangiovese	83	101	93	102	93	83	101	98	97	89	93	90	82	103	-0.749

Average Mean December + March 1 – 15 Temperature

43.2 41.8 44.2 37.1 42.3 47.3 37.3 43.7 42.4 46.0 45.6 48.2 47.0 41.6

^zWhere 91 = April 1.

Cultivar Spotlight: ‘Chambourcin’

Eric T. Stafne

‘Chambourcin’ is a French-American hybrid with an unknown parentage. This cultivar has been around since the 1800s and was grown in France at one time in significant acreage. It is still being grown in other major wine producing countries such as Australia and makes an excellent quality wine. The cold hardiness is better than *V. vinifera* cultivars, but ‘Chambourcin’ is one of the more cold-tender hybrids. Resistance to disease is good, especially fruit rots because of its loose clusters. It may need to be cluster thinned to maintain high quality, as it is a prolific cropper. Budbreak is fairly early, but secondary buds are fruitful. ‘Chambourcin’ can be grown on its own roots, but often benefits from a rootstock. The vine can be trained either to a high cordon or a vertical shoot positioning (low cordon) system. Although resistance to some foliar diseases, it is susceptible to black rot, so adequate spraying should be done. ‘Chambourcin’ is sensitive to sprays containing sulfur. This cultivar has been one of the most consistent and productive vines at our experiment station in Perkins. In observations over the last three years, ‘Chambourcin’ also appears to be somewhat less susceptible to 2,4-D injury than most other cultivars. By no means does this mean it is resistant, but only potentially able to tolerate a slight drift without significant injury. ‘Chambourcin’ has been a proven cultivar grown all over the world. It is grown widely in the Midwest as well. I believe this cultivar should be looked at as a first choice (along with ‘Cynthiana/Norton’) when considering red wine cultivars for Oklahoma.



Viticulture & Enology
OKLAHOMA STATE UNIVERSITY

OKLAHOMA STATE UNIVERSITY AND OKLAHOMA COOPERATIVE EXTENSION SERVICE

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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.

Table 2. Linear regression equation to calculate grape budbreak date for 12 cultivars at the Cimarron Valley Research Station, Perkins Okla.

Cultivar	Equation
Viognier	Budbreak = 161.13 – 1.53 x (Temperature)
Cabernet Franc	Budbreak = 161.25 – 1.53 x (Temperature)
Merlot	Budbreak = 162.11 – 1.56 x (Temperature)
Shiraz	Budbreak = 164.11 – 1.58 x (Temperature)
Malbec	Budbreak = 161.91 – 1.52 x (Temperature)
Pinot Gris	Budbreak = 161.40 – 1.51 x (Temperature)
Petit Verdot	Budbreak = 162.05 – 1.49 x (Temperature)
Ruby Cabernet	Budbreak = 167.42 – 1.61 x (Temperature)
Cynthiana	Budbreak = 168.87 – 1.56 x (Temperature)
Cabernet Sauvignon	Budbreak = 169.95 – 1.55 x (Temperature)
Chardonnay	Budbreak = 162.43 – 1.76 x (Temperature)
Sangiovese	Budbreak = 163.62 – 1.62 x (Temperature)