

# Le Vigneron

A newsletter for the grape growers and wine makers of Oklahoma

Volume 6, issue 1

January-March 2011

## Co-editors:

- Eric T. Stafne
- William McGlynn



## Inside this issue:

Dry Times	1
GMSC Update	1
Grape Seed Oil	2
New Spray Guide	2
Soil Moisture in Winter	3
Soil Moisture Cont.	4
Drought Map of U.S.	5
Drought Map of OK.	6
Drought Forecast U.S.	7
Powdery Mildew	8-9
Cultivar Spotlight	10
Unified Symposium	11

## Dry Times

The past few months have been pretty dry around here. We are below normal in rainfall, but have we entered into a dangerous situation with regard to our vines? The North Central and Northeast regions of the state are currently recorded (Dec. 1, 2010 to Jan. 5, 2011) as the 4th driest since 1921. The Southwest region is the 3rd driest and every region of the state is below normal. The major impact of this will be evident if we get a significant cold event. Usually the most damaging cold events come not from mid-winter cold, but abnormal situations during the “shoulder” seasons of late fall-early winter or late winter-early spring. Sure, we get bud kill, but not much vine damage; however, with a lack of moisture we may be in for something more dire unless the faucet gets turned on. Fritz Westover, viticulture specialist, with Texas A&M has contributed an article on dormant water management in the vineyard. It is a situation that is not easy to deal with, but understanding of water in the soil is paramount for avoiding undesired outcomes. The Oklahoma Mesonet Agweather website is a great place to keep on top of our ever-changing weather. If you have never been to the site I encourage you to look at it and find ways to use it for fine tuning your vineyard management. You can find the site by following this link: <http://agweather.mesonet.org/>.

## 2011 OSU Grape Management Short Course Update

### Eric T. Stafne

It is time to sign up for the 2011 OSU Grape Management Short Course. Payment can be made by check or (preferably) online by credit card. Follow this link to see the brochure and registration information:

<http://www.hortla.okstate.edu/pdf/2011grapemgmt.pdf>

Attendees will receive the Handbook of Oklahoma Vineyard Establishment and Management, the Pocket Guide to Oklahoma Grape Diseases, Insects, and Other Disorders, the 2011 Midwest Small Fruit and Grape Spray Guide, as well as handouts for all presentations.

## Grape Seed Oil

**William McGlynn**

Grape seed oil typically sells at retail for between \$5.00 and \$10.00 for a 16 oz. bottle. At those prices, the oil that can be produced from a ton of grapes has a retail value of about \$30.00 to \$60.00 – assuming a yield of about 3 quarts of oil per ton of grapes (that assumes ~70 lbs of dry seed per ton of fresh grapes and ~1.5 oz. of oil per pound of dry seed). That's not a bad return for grape pomace that would otherwise go to waste. Given that grape seed oil is prized by cooks for its high smoke point, its distinctive color and flavor, and its high antioxidant and polyunsaturated fat content, it's little wonder that many small wineries are interested in exploring their options for marketing this value-added product (<http://www.winesandvines.com/template.cfm?section=news&content=82456&hitle=Treasure%20in%20Winery%20Trash>).

To manufacture grape seed oil, one must separate and dry the grape seeds after pressing. There are machines to do this, but they are expensive. Most small operations will use screens with about a 1/8" sieve size to separate the seeds by hand while the pomace is still wet – this process can be very labor intensive. However the separation is done, the seeds should be dried quickly in order to preserve oil quality. Sun drying is most commonly used by small-scale processors.

Once the seeds have been dried, the oil is most commonly cold-pressed using a screw press. Prices for these presses start at about \$3,000-\$5,000 for a press that will handle anywhere from 10 to 100 lbs of seed per hour, depending on the design. Prices and capacity go up from there. Oil yields may be increased significantly by coarse milling the grape seed prior to pressing.

Grape seed oil is fairly sensitive to rancidity because of its unsaturated fatty acid content. If the oil is stored in tightly-sealed containers with little excess head space and kept in a relatively cool, dark storage location, one can expect a working shelf life of 6-12 months.

It is possible to manufacture grape seed oil without a very large up-front capital investment. But as with many winery operations, a substantial investment of time and labor may be required. As always, it's best to consider this on the front end, before any checks are written.

## New 2011 Midwest Small Fruit and Grape Spray Guide

**Eric T. Stafne**

The latest edition of the Midwest Small Fruit and Grape Spray Guide is now available. Below is a link to the new 2011 Midwest Small Fruit and Grape Spray Guide. I will have some hard copies of it after the first of the year. I still have some of the 2010 version and will be dispersing those at meetings in the coming weeks. If you have never used this publication you should. It is my "spray bible".

<http://www.ag.purdue.edu/hla/Hort/Documents/ID-169-2011.pdf>

Oklahoma State University has been part of the effort to bring this publication to you since 2006. We have used this publication in our Grape Management Short Course ever since I started teaching the course in 2006. I believe it is the best spray guide available and when used in conjunction with the OSU Current Report 6252 "Commercial Grape Insect and Disease Control" you have access to the latest information available on pest management. The portion of the Midwest Guide I use more than any other is the weed control section. Sometimes that information can be difficult to find readily in other sources, but it is all here in one place. Bookmark the webpage and look at it often.

# Soil Moisture Management for Dormant Grapevines

Fritz Westover, Texas A&M University (intro by Eric T. Stafne, Oklahoma State University)

## Introduction

In past years in Oklahoma we have had some dry winters. Think back to 2005-2006 when very dry conditions prevailed. The 2010-2011 timeframe doesn't appear to be as drastic, but moderate drought conditions are showing up in some regions of the state. A lack of winter moisture can have profound impacts on grapevines. The problem is — how does one deliver water during the winter? And how much? I have included here an article by Fritz Westover from Texas A&M. He is located in the Gulf Coast area around Houston, so some of their conditions are different than ours in Oklahoma, but the information is still sound.

Vineyards have experienced little rain in the Gulf Coast region in the months of October and November. As a result, several growers have contacted the Extension office to inquire about irrigation practices for dormant vines. If irrigating this time of year, remember to flush excess water out of the irrigation lines and all above-ground equipment to avoid freeze damage. Winter temperatures are generally mild in this region; however temperatures below 20 F caught a few growers by surprise in the winter of 2009/2010.

At this time, most of the vineyards have lost their leaves as vines prepare for winter dormancy, which is a natural process this time of year. It is true that dormant vines utilize less water than actively growing vines; however, it is important to keep proper soil moisture in the vineyard from the time of harvest until bud break in the spring. Frequent monitoring of soil moisture will be even more critical for newly planted vineyards. Below are some of the most frequently asked questions:

## How much and how often should vines be watered after harvest?

In a droughty post-harvest season such as we are experiencing in 2010, it is typical to water the soil to full capacity soon after harvest. Maintaining soil moisture is especially important in the Gulf Coast, as we typically can maintain a healthy canopy until late November by doing so. Growers in regions with extreme low winter temperatures need to be cautious about stimulating vine growth late in the season, as vines must gradually harden off for improved winter hardiness. Winters are relatively mild in the Gulf Coast region, but vines would still benefit from management practices that slow vine growth by November, while still maintaining canopy. The amount of water required will depend upon the soil type and depth of vine roots. A clay soil will hold more water for a longer period of time than a sandy soil. Therefore, a sandy soil will require more frequent watering during the post harvest period, just as is necessary during the active growing season. It is common to find Gulf Coast vineyards planted on soils with 12 to 24 inches of sandy loam soil, having higher clay content at 2 to 4 feet of depth. In such soils, older vines that can access water from the clay subsoil may require less frequent watering. Growers should be careful to ensure that young vines (1 to 3- years-old) have adequate soil moisture to the depth of the root zone.

-continued Page 4-

## Soil Moisture, cont.

Fritz Westover

### What can happen if soil dries out in the vineyard?

Prolonged periods of drought during vine dormancy can result in the desiccation and eventual dieback of roots. It is normal for some root dieback to occur during the winter as water demand by the vines decreases. If the soil is very dry, however, roots can lose water to the surrounding soil, potentially causing greater root death than is typical. Root area lost during the winter will eventually grow back in the spring, but the process may take some time. Shoot growth in the spring relies heavily on carbohydrates and nitrogen reserved in the trunk, cordons, and roots. The longer the period needed for root re-growth, the greater the chance is that a vine will suffer from nutrient deficiencies leading into bloom. Development of fine “feeder” roots is especially important for uptake of nutrients such as phosphorous, boron, and zinc. Thus, maintaining a healthy root system over the winter will improve availability of carbohydrate reserves in the spring and provide more surface area for feeder root development.

### How can I determine if there is enough moisture in the root zone?

Root zone moisture can vary during vine dormancy. It is not desirable to have excessively dry or excessively moist soil for prolonged periods of time. There are both high and low-tech methods for determining the water status of your soil. If there are soil moisture monitors installed in the vineyard, such as Watermark sensors by Spectrum Technologies, they should be checked about every other week during dormancy to determine the loss or gain of soil moisture. A simple hand held reader can be used in the field to measure electrical resistance, providing a numeric range representing soil moisture (0 = saturated to 200 = extremely dry). It has recently been brought to my attention that Watermark sensors will read soil moisture accurately for about 3 or 4 years, thus if sensors are reaching this threshold, winter is a good time to replace them. For those who do not have moisture monitors installed yet or have not established a numeric moisture scale for their site, there is always the tried and true, low-tech method: dig a hole and stick your hand down there! This is also a good way to confirm what the number on the moisture sensor is telling you about actual soil moisture in your site. If you have any questions about watering your vineyard this winter, please do not hesitate to contact your local county extension office.

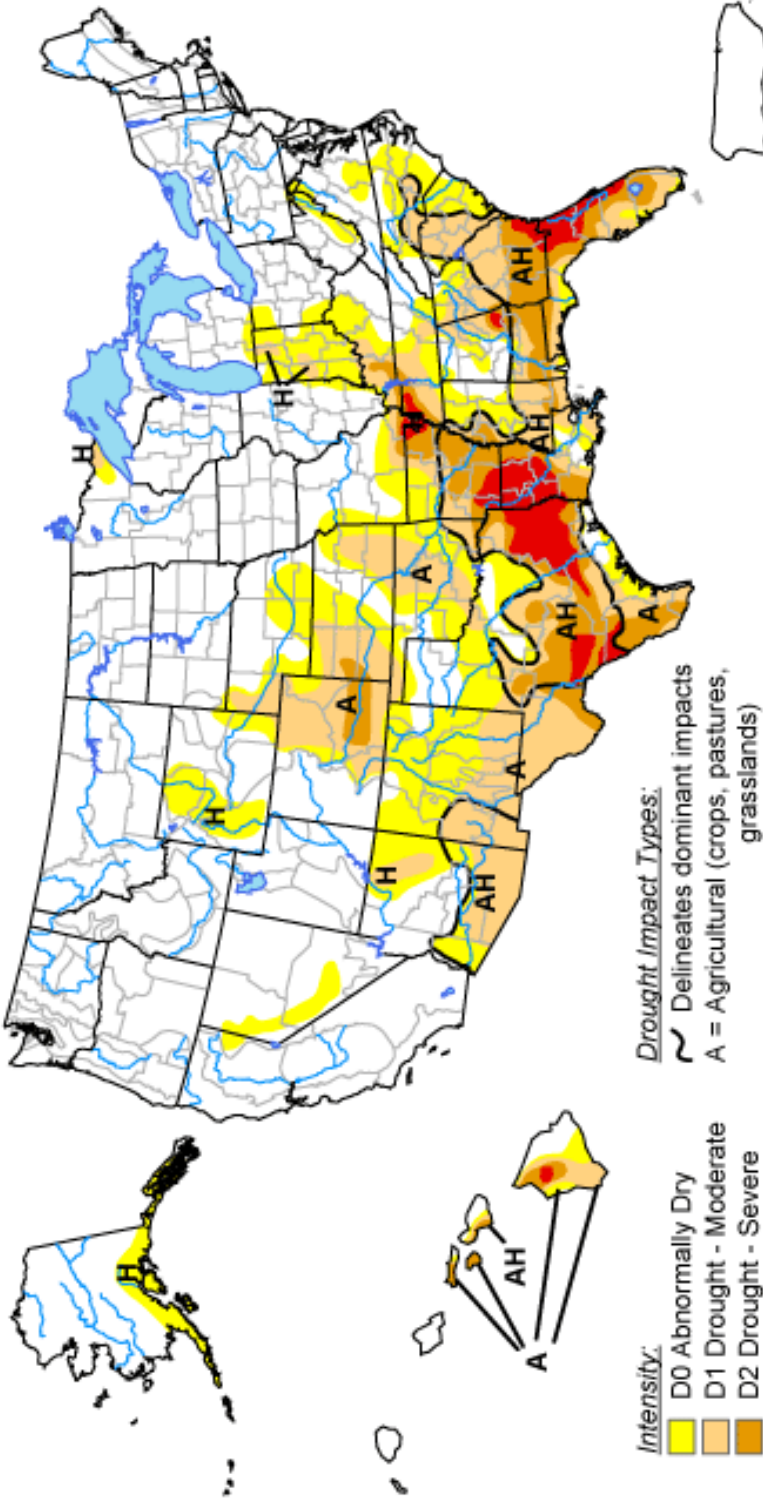


Photo: Watermark soil moisture sensor with field meter.

# Current Drought Situation in the U.S.

## U.S. Drought Monitor

January 4, 2011  
Valid 7 a.m. EST



**Intensity:**

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

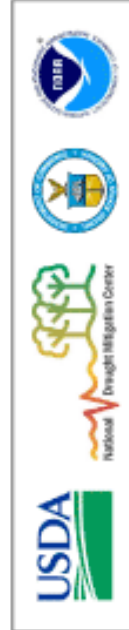
**Drought Impact Types:**

- Delineates dominant impacts
- A = Agricultural (crops, pastures, grasslands)
- H = Hydrological (water)

The Drought Monitor focuses on broad-scale conditions.

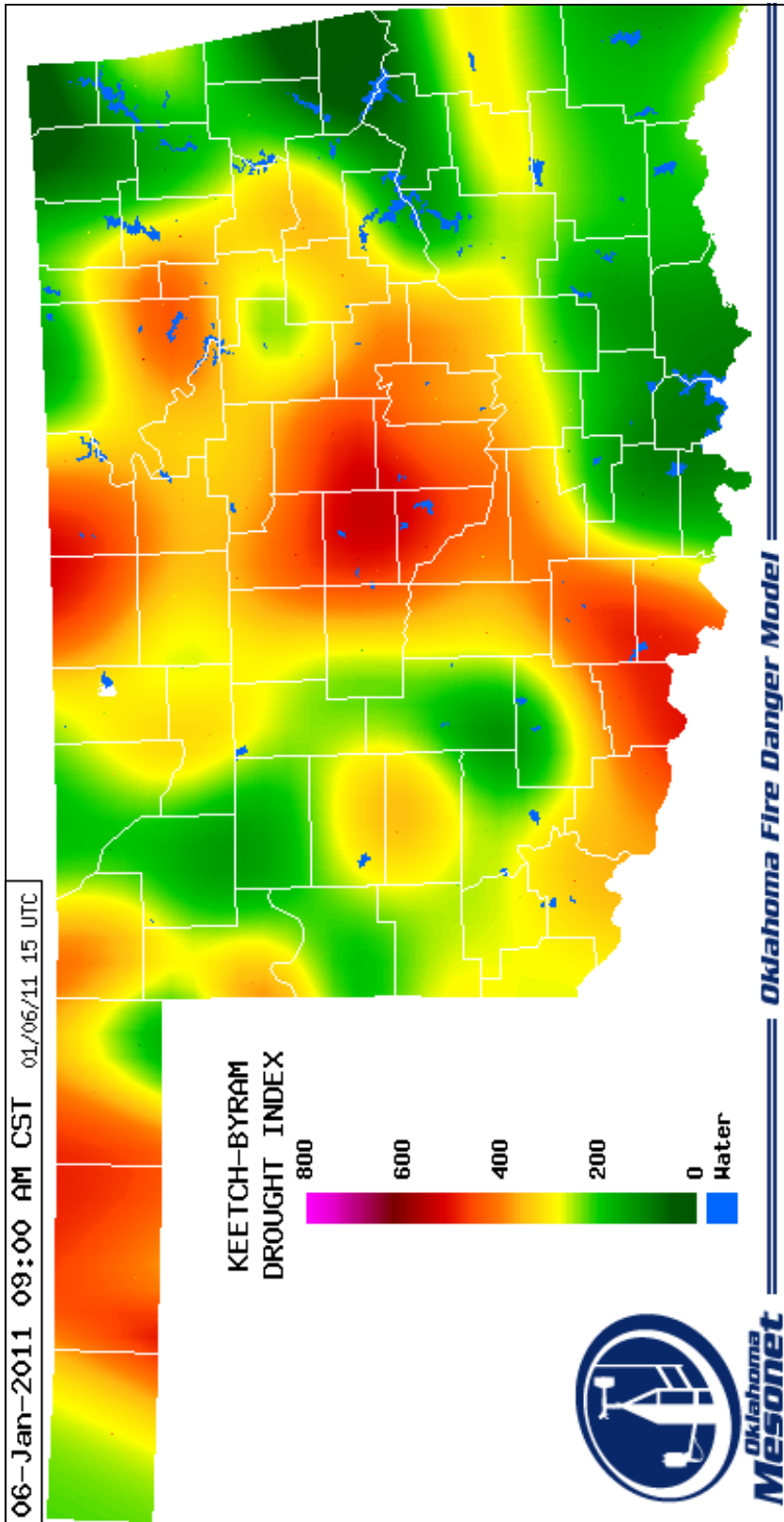
Local conditions may vary. See accompanying text summary for forecast statements.

<http://drought.unl.edu/dm>

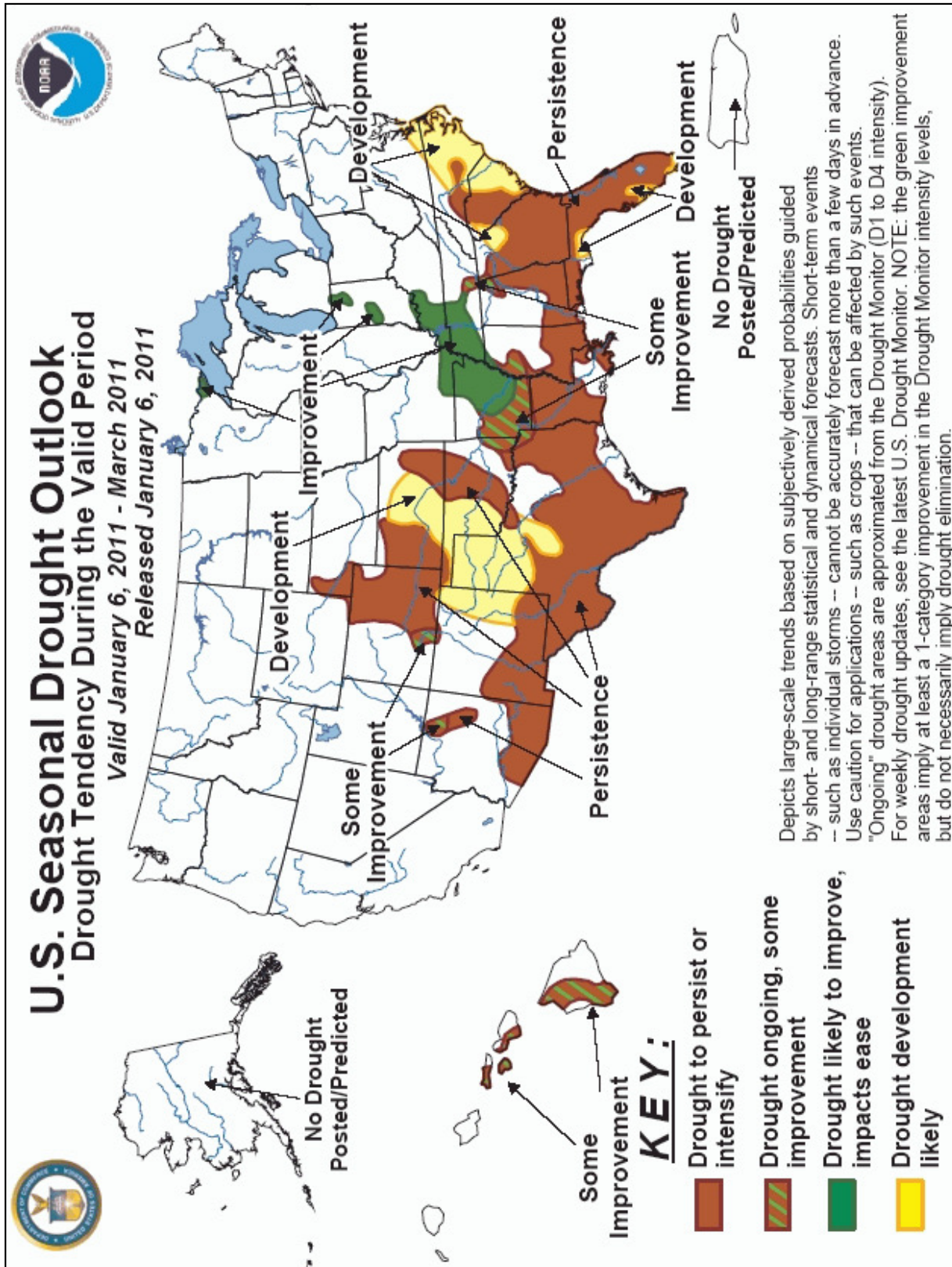


Released Thursday, January 6, 2011  
Author: Anthony Artusa, NOAA/NWS/NCEP/CPC

# Current Oklahoma Drought Situation



# Drought Outlook for Early 2011



## A New Fungicide and a Review of Powdery Mildew

Damon Smith, Oklahoma State University

I recently received notification from BASF Crop Protection that they have developed a new fungicide that is targeted at controlling powdery mildew on grape. The new product is called Vivando®. While the addition of new fungicides is always exciting from a plant pathologist's standpoint, this product is especially exciting. Vivando has an active ingredient (metrafenone) that is in its own chemical class. This means that growers now have more options to rotate with in order to control powdery mildew. Remember that rotating fungicide classes is always recommended so that fungicide resistance development in the pathogen can be limited as much as possible. BASF also claims that the new active ingredient is lipophilic (fat loving) meaning that it can be easily absorbed into the waxy cuticle that covers grape plant parts, thereby improving distribution and localized systemic movement of the product compared to other types of fungicides.

I have not had the opportunity to evaluate this product in Oklahoma. However, I have reviewed data from several University sources. Dr. Gubler's laboratory at the University of California-Davis examined the efficacy of Vivando as compared to several other experimental and commercial fungicides. They found that when Vivando was tank-mixed with a silicone surfactant (Sylgard) it provided control of powdery mildew that was comparable to products such as Pristine. Powdery mildew severity on 'Chardonnay' fruit treated with Vivando+Sylgard was held to around 2%-20% (depending on the rate of Vivando used) compared to 90% on the non-treated controls. In a similar study at Washington State University, Dr. Grove's research lab found that Vivando+Sylgard provided control similar to Quintec and Flint. 'White Riesling' fruit treated with Vivando+Sylgard had 1% powdery mildew severity compared to 14% severity on fruit not treated with fungicide in the Washington study.

While powdery mildew is not a consistent or often persistent problem in Oklahoma it can be of concern in some years. In Oklahoma, powdery mildew can appear in the spring, but is typically a late-summer or fall disease. If it is a problem in your vineyard, then Vivando might be a fungicide that can fit into your fungicide rotation.

Considering all this talk about grape powdery mildew, I thought it might be helpful to also review the biology, epidemiology, and control recommendations for the disease in this article. Powdery mildew is caused by the fungus *Erysiphe necator*. The fungus can parasitize all species and hybrids of grapes grown in Oklahoma. Early-season disease can reduce cluster size, affect vine vigor, and predispose fruit to bunch rot diseases. Late-season disease can cause premature defoliation resulting in stress which can predispose plants to winter damage.

The fungus overwinters as fruiting bodies (chasmothecia) in bark. Primary infections occur via release of spores (ascospores) from chasmothecia. On leaves, prolific white fungal growth will be evident.

-continued Page 9-



## Powdery Mildew, Cont.

Damon Smith

Secondary infections result from another type of spore (conidia) generated from mycelial growth. Infections by *E. necator* can occur at temperatures ranging from 43 °F to 90 °F, but optimal temperature for infection ranges from 68 °F to 81°F. Unlike many other foliar fungal pathogens, *E. necator* does not require free moisture to induce disease and is actually negatively impacted when subjected to rain events. High humidity ( $\geq 85\%$ ) is sufficient for powdery mildew to develop. Fruit are susceptible to infection from just prior to bloom until one month after bloom. In grape cultivars that tend to ripen unevenly, the period of fruit susceptibility may last longer than one month after bloom. White fungal growth is often apparent on infected fruit, and fruit will be small and can crack and split (Figure 1).

*Cultural Management Options.* Selecting sites with good air flow and sun exposure will help limit in-canopy humidity, resulting in reduced levels of powdery mildew. Also, proper training and pruning will facilitate air movement in the canopy and improve fungicide coverage on the plant canopy.

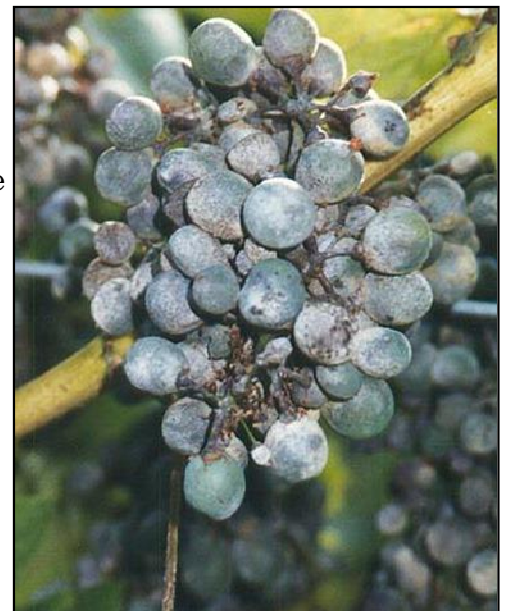
*Chemical Management Options.* Fungicide applications should be initiated at 3- to 10-inch shoot growth to prevent powdery mildew. Sprays directed toward powdery mildew should occur on a regular schedule until 4-6 weeks (humid, eastern areas of Oklahoma) after bloom or until weather becomes dry and hot, and not conducive for powdery mildew (central and western areas of Oklahoma). In vineyards with a history of powdery mildew, fungicides should be applied beginning at 3- to 5-inch growth and continue on a regular schedule. Be sure to choose fungicides that are labeled to control powdery mildew. Many fungicides effective for controlling black rot are not effective for controlling powdery mildew. Tank mixing of two fungicides will be necessary in most situations to manage both powdery mildew and black rot.

**Figure 1.** Symptoms of powdery mildew damage on fruit. (Photo Credit: Dr. Turner Sutton, North Carolina State University)

### References:

Bay, I.S., Janousek, C.N., and Gubler, W.D. 2010. Fungicide control of grape powdery mildew, trials IV and V, 2009. Plant Disease Management Reports 4:SMF012.

Nelson, M.E. and Grove, G.G. 2010. Evaluation of fungicides for control of grape powdery mildew, 2009. Plant Disease Management Reports 4:SMF012.



## Cultivar Spotlight: Merlot

Eric T. Stafne

A very popular red grape that can be used as a varietal wine or in a blend. It has thin skin and mild tannins. Historically, Merlot was primarily used for blending with Cabernet Sauvignon and other Bordeaux cultivars to add softness and fruit complexity, shorten aging requirements, and to hedge the risk of cool, late-ripening conditions in Bordeaux. In recent years it has also become popular as a full-bodied, high-quality varietal wine that can be marketed sooner than Cabernet Sauvignon.

Little is known of the origin of Merlot, but it has been cultivated in the Bordeaux region of France since the eighteenth century. The first true botanical description was in 1854 by V. Rendue who described it favorably for blending with Malbec and Cabernet Sauvignon. A resurgence of planting in France since the 1970s makes it the third most planted red cultivar there. It is also widely planted in other regions in Europe and South America.

This vine is susceptible to winter injury, as it is not one of the more cold hardy vinifera grapes. Bud-break is fairly early and is thus susceptible to frost in the spring. Fruit is susceptible to disease. Merlot has medium-high vigor and a trailing growth habit. Excess vigor quickly creates a dense canopy due to lateral shoot development. It is adapted to cool to warm climate regions. Merlot does well on deep, sandy loam or well-drained soils that have good moisture-holding capacity.

Merlot is susceptible to poor fruit set if cool weather occurs during bloom, which often contributes to seasonal variations in productivity. Its own-rooted vines tend to accumulate high levels of nitrogen compounds, including nitrates, during bloom, especially during cool weather. Thus, judicious and moderate nitrogen fertilization is recommended; post-bloom applications are advisable. The use of resistant rootstocks tends to minimize or even eliminate this problem. Merlot is somewhat sensitive to soil problems that involve zinc deficiency, salinity, and cold, excessively wet conditions.



# Viticulture & Enology

OKLAHOMA STATE UNIVERSITY

OKLAHOMA STATE UNIVERSITY AND OKLAHOMA COOPERATIVE EXTENSION SERVICE

Oklahoma State University  
Department of Horticulture and Landscape Architecture  
360 Agricultural Hall  
Stillwater, OK 74078

Phone: 405-744-5409  
www.grapes.okstate.edu  
E-mail: eric.t.stafne@okstate.edu  
william.mcglynn@okstate.edu

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.

## Unified Grape and Wine Symposium

Eric T. Stafne

This year I will be speaking at the Unified Grape and Wine Symposium in Sacramento, CA. It will be the first time I have attended this meeting but am looking forward to it. The session is scheduled from 8-9am on January 27th. Below is the information on my session or go here for more on the entire symposium (<http://unifiedsymposium.org/dailyschedule.html>).

### Industry Outreach Session

Moderator:

**Tom Collins**, Treasury Wine Estates, California

8:00 am

#### Access to the Experts: More Information at your Fingertips

During this presentation, our experts will be providing an insider's guide to valuable new internet resources available to grape growers and winemakers. Dr. Deborah Golino, UC Davis, will update us on the new content and features of the Integrated Viticulture Website and the National Grape Registry. Dr. Linda Bisson, UC Davis, will introduce our Unified audience to VENsource, a System for Outreach, Research, Communication, and Extension. Enology Access, the center piece of VENsource, will be featured. Our wrap up will be the roll out of the new national grape community of practice (GCoP) through eXtension, funded by a Specialty Crops Research Initiative grant supported by as a core project of the National Grape & Wine Initiative. Dr. Eric T. Stafne, Oklahoma State University, is the Project Director of eXtension Grape Community of Practice and will introduce us to the valuable new resource.

#### Speakers: (in order of presentation)

Deborah Golino, University of California, Davis

Linda Bisson, University of California, Davis

Eric T. Stafne, Oklahoma State University, Stillwater