

# *Ohio Grape-Wine Electronic Newsletter*

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# Anthracnose of Grape

*By Mike Ellis, Small Fruit Disease Pathologist OARDC/OSU*

## **Note from Mike Ellis on Anthracnose of Grape:**

I have seen several cases of anthracnose on grapes this year so I wanted to share this information with you. Anthracnose is not very common in Ohio (at least it hasn't been), but when it does develop it can be very serious and requires special treatment for control. A dormant application of liquid lime sulfur is necessary to get the disease under control. The following information is a fact sheet that I have prepared that describes the disease. Specific fungicide recommendations are made at the end of the fact sheet. If you have any questions regarding this or any other grape disease, please contact me at:

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**A**nthracnose of grape was first detected in the United States in the mid-1800s. The disease was probably introduced into this country by grape plant material imported from Europe. It quickly established in American vineyards and became a significant disease of grape in rainy, humid, and warm regions of the United States. The disease is not common in Ohio; however, it caused severe damage in a central Ohio vineyard on the cultivar 'Vidal' in 1993 and in a southern Ohio vineyard on the cultivars 'Vidal' and 'Reliance' in 1998. Anthracnose reduces the quality and quantity of fruit and weakens the vine. Once the disease is established in a vineyard, it can be very destructive.

## **Symptoms**

All succulent parts of the plant, including fruit stems, leaves, petioles, tendrils, young shoots, and berries, can be attacked, but lesions on shoots and berries are most common and distinctive. Symptoms on young, succulent shoots first appear as numerous small, circular, and reddish spots. Spots then enlarge, become sunken, and produce lesions with gray centers and round or angular edges (Figure 1). Dark reddish-brown to violet-black margins eventually surround the lesions. Lesions may coalesce, causing a blighting or killing of the shoot. A slightly raised area may form around the edge of the lesion. Infected areas may crack, causing shoots to become brittle. Anthracnose lesions on shoots may be confused with hail injury; however, unlike hail damage, the edges of the wounds caused by the anthracnose fungus are raised and black. In addition, hail damage generally appears on only one side of the shoot, whereas anthracnose is more generally distributed. Anthracnose on petioles appears similar to that on the shoots.



Figure 1. Anthracnose symptoms on grape cane.

Leaf spots are often numerous and develop in a similar manner to those on shoots. Eventually, they become circular with gray centers and brown to black margins with round or angular edges. The necrotic center of the lesion often drops out, creating a shot-hole appearance (Figure 2). Young leaves are more susceptible to infection than older leaves. When veins are affected, especially on young leaves, the lesions prevent normal development, resulting in malformation or complete drying or burning of the leaf. Lesions may cover the entire leaf blade or appear mainly along the veins.

On berries, small, reddish circular spots initially develop. The spots then enlarge to an average diameter of 1/4 inch and may become slightly sunken. The centers of the spots turn whitish gray and are surrounded by narrow reddish-brown to black margins (Figure 3). This typical symptom on fruit often resembles a bird's eye, and the disease has been called bird's eye rot. Acervuli (fungal fruiting structures) eventually develop in the lesions. A pinkish mass of fungal spores (conidia) exudes from these structures during prolonged wet weather. Lesions may extend into the pulp and cause the fruit to crack. Lesions on the rachis and pedicels appear similar to those on shoots. Clusters are susceptible to infection before flowering and until *Véraison*.



Figure 2. Anthracnose symptoms on grape leaf. Note the shot holes where infected tissues drop out.



Figure 3. Typical symptoms of anthracnose on grape berry. Note the lesion resembles a bird's eye.

## Causal Organism

Anthracnose of grape is caused by the fungus *Elsinoe ampelina*. The fungus overwinters in the vineyards as sclerotia (fungal survival structures) on infected shoots. In the spring, sclerotia on infected shoots germinate to produce abundant spores (conidia) when they are wet for 24 hours or more and the temperature is above 36 degrees F.

Conidia are spread by splashing rain to new growing tissues and are not carried by wind alone.

Another type of spore, called an ascospore, is produced within sexual fruiting bodies and may also form on infected canes and berries left on the ground or in the trellis from the previous year. The importance of ascospores in disease development is not clearly understood.

Conidia are by far the most important source of primary inoculum in the spring. In early spring, when free moisture from rain or dew is present, conidia germinate and infect succulent tissue. Conidia germinate and infect at temperatures ranging from 36 to 90 degrees F. The higher the temperature, the faster disease develops. Disease symptoms start to develop approximately 13 days after infection occurs at 36 degrees F and at four days after infection occurs at 90 degrees F. Heavy rainfall and warm temperatures are ideal for disease development and spread.

Once the disease is established, asexual fruiting bodies called acervuli form on diseased areas. These acervuli produce conidia during periods of wet weather. These conidia are the secondary source of inoculum and are responsible for continued spread of the fungus and the disease throughout the growing season.

## **Disease Management**

- 1. Sanitation is very important.** Prune out and destroy (remove from the vineyard) diseased plant parts during the dormant season. This includes infected shoots, cluster stems, and berries. This should reduce the amount of primary inoculum for the disease in the vineyard.
- 2. Eliminate wild grapes near the vineyard.** The disease can infect wild grapes, and infected wild grapes have been observed near diseased vineyards in Ohio. Wild grapes provide an excellent place for the disease to develop and serve as a reservoir for the disease. It is probably impossible to eradicate wild grapes from the woods, but serious efforts should be made to at least remove them from the fence rows and as far away from the vineyard as possible. Remember, the spores are spread over relatively short distances by splashing rain and should not be able to move over long distances by wind into the vineyard.
- 3. Varieties differ in their susceptibility.** In Ohio the disease has been observed on 'Vidal' and 'Reliance.' Vinifera and French Hybrid cultivars may be more susceptible than American grapes, such as 'Concord' and 'Niagara.'
- 4. Canopy management can aid in disease control.** Any practice that opens the canopy to improve air circulation and reduce drying time of susceptible tissue is beneficial for disease control. These practices include selection of the proper training system, shoot positioning, and leaf removal.
- 5. Fungicide use.** Where the disease is established, especially in a commercial vineyard, the use of fungicides is recommended. Fungicide recommendations for anthracnose control consist of a dormant application of Liquid Lime Sulfur in early spring, followed by applications of foliar fungicides during the growing season.

Lime sulfur is applied at the rate of 10 gallons per acre. At this rate, lime sulfur will burn grape tissue so it should not be applied past bud swell. Foliar fungicides applied during the growing season will

provide additional control. Mancozeb, Captan, Ziram and copper are rated as only slightly or moderately effective for anthracnose control, but data to support this is lacking. Pristine is registered for control of anthracnose, so it should provide a good level of control.

## Late Season Sprays

*By Mike Ellis, Small Fruit Disease Pathologist OARDC/OSU*

**This is one of the worst years for powdery and downy mildew infection that I have seen in 30 years.**

**Late season disease development can result in defoliation that can cause serious problems in the vineyard (primarily loss of winter hardiness). Late season disease control is very important for the long term health of the vines and to provide a healthy canopy to ripen the crop.**

**Late Season Summer Sprays Should Not Exceed a 10 to 14-Day Interval**

**If excessive rain occurs, you may need to use a 7 to 10- Interval.**

**The following are some fungicide options that can be considered for late season control of powdery and downy mildew.**

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Mancozeb (3-4 lb/A) or Captan 50W (3-4 lb/A) or Phosphorous Acid

**PLUS**

Endura 70WG (4.5 oz)

or

Quintec 2.08F (4 fl oz)

or

Wettable Sulfur (8-10 lb/A)

or

Flowable Sulfur 6F (3 qt)

or

Potassium salts

**OR**

Fixed Copper Fungicide used alone

**OR**

Pristine 38WG (6-10.5 oz) used alone

**NOTE:** Ridomil Gold/Copper is by far the most effective fungicide for control of Downy mildew. It has a 42 day Pre Harvest Interval(**PHI**). It cannot be applied within 42 days of harvest. On very late maturing varieties, it may still be possible to use it if downy is a severe threat in the vineyard.

**NOTE:** Watch the 66 days PHI on Mancozeb. On late maturing varieties, mancozeb can be used later in the season as long as it is not applied within 66 days of harvest. I recommend keeping it in the spray program as long as it is legal to use.

If you get within 66 days of Harvest, Captan or ProPhyt can be used in place of Mancozeb for downy mildew control. If you have more than 66 days to harvest, Mancozeb would be the fungicide of choice. Mancozeb, Captan, or ProPhyt is included for downy mildew control only. If weather is dry and downy mildew is not a problem, these fungicides are not required.

**NOTE:** If dry weather persists and the risk of Downy Mildew is low, Captan or ProPhyt should not be required and Sulfur can be used alone for powdery mildew control. If weather is wet and Downy is a problem, a Downy Mildew material should be included. A Fixed Copper Fungicide will give good control of both Downy and Powdery Mildew. Especially on susceptible varieties, powdery mildew will need to be controlled throughout the growing season.

**NOTE:** Do not apply Captan, sulfur or copper fungicides within 30 days of harvest or fermentation may be affected and **DO NOT** combine Captan or Sulfur with any form of oil.

**Pristine applied at Normal Harvest for Ice wine:** Grapes for Ice wine production must hang for long periods past normal harvest prior to picking. An application of Pristine at normal harvest

time may aid in controlling some fruit rots of ripe grapes, especially during falls and early winters when temperatures remain high.

## **Reminder! Regarding the Upcoming August 2008 Ohio Quality Wine Assurance Program Sensory Evaluation**

*By Todd Steiner Enology Program Manager & Outreach Specialist*

After a successful completion of the 2008 Ohio Wine Competition that included wines entered into the Ohio Quality Wine Assurance Program (OQW), we are offering a second sensory evaluation submittal time for OQW seal designation taking place August 26, 2008. As a reminder, we would cordially like to invite you to participate and contribute to the progress of our industry through identifying wines of consistent quality throughout the Ohio commercial wine industry.

The 2008 Ohio Wine Competition had a total of 63 entries into the OQW program in which 28 wines achieved enough points for seal designation. To date, a total of 184 wines have been entered into the OQW program with 89 wines achieving seal designation. I believe this is a significant accomplishment in the beginning stages of the OQW program. Since the unveiling of the OQW program at the Statehouse in June, I am hopeful that the marketing program will continue to place a high priority in recognizing the special wines achieving OQW status for both the Ohio grape and wine industry in addition to consumer awareness. In addition, the increasing press that we are receiving outside of the state regarding the OQW program, has been positive and makes this an important program to emphasize in Ohio showcasing the excellent wine quality we can produce on a consistent basis.

All Ohio commercial wines entered into the August sensory evaluation:

- Scoring high enough (15 points or above) on average as rated by our panel of five experienced judges are eligible for seal designation assuming all other parameters have been met according to the rules and regulations under the Ohio Quality Wine Assurance Program.
- Are randomly coded, presented in the proper category and flight order to be evaluated blindly on a standard twenty point scale used in most competitions throughout the United States.

In addition to the upcoming sensory evaluation held August 26, there will be a third submittal time held in early December. Sensory evaluation will occur under the same judging format as the Ohio Wine Competition in providing organoleptic consistency. Many of the judge's chosen will have had previous experience judging in the Ohio Wine Competition. The additional submittal times are designated to help answer bottling of specific release dates during the calendar year. In

addition, submittal of wine entries evaluated during the 2008 Ohio Wine Competition or previous OQW sensory evaluations which did not score enough points for seal designation may also be resubmitted at the standard charge.

According to OQW regulations, chemical analysis of wines entered will provide a second standard of quality with the OQW program relating to Federal (TTB) limits on alcohol, volatile acidity and total sulfur dioxide levels. As seen through the chemical analysis of wines entered into the Ohio Wine Competition, analytical results have correlated nicely with judge's comments regarding quality parameters and also provide a check on judging competence and accuracy.

Your wines are as precious to us as they are to you, which are reflected in our careful selection of experienced judges and our sincere efforts to provide as objective an evaluation as possible. In this spirit, we are looking forward to assessing wines to be entered into the August submittal of the OQW program.

- The sensory evaluation will be held on August 26, 2008, at OARDC.
- A minimum of 10 wines is required for the sensory evaluation to be performed. In the event that we do not achieve the minimum amount of wines necessary to perform the sensory evaluation, the wines entered will be evaluated in the next submittal time (December) according to OQW program guidelines.

In addition to the entry forms sent by mail to all commercial Ohio wineries last month, entry forms for the 2008 August OQW Sensory Evaluation will also be posted online at the Ohio Grape Web with the following link; <http://www.oardc.ohio-state.edu/grapeweb/> for printing of entry forms by computer. The entry forms and entry fees should be sent to the address listed on the entry form.

If you have any questions regarding the August sensory evaluation or the OQW program in general, please do not hesitate to contact Christy Eckstein at OGIC or myself at OARDC.

If you are interested in submitting a wine entry for OQW evaluation in the August submittal and have not done so already, please contact Todd Steiner at the number provided in the entry forms. We would appreciate if you sent the entry forms, entry fees and the invoices as soon as possible, so we can start the process of organization. Thank you! Entry deadline has been previously set for August 19, 2008. **Entry deadlines will be strict in helping determine the number of wines necessary to perform the sensory evaluation.**

We would also especially like to recognize the Ohio Grape Industries Committee for their support, marketing efforts and assistance with the implementation of the OQW program for the betterment of the commercial Ohio grape and wine industry

## REGIONAL UPDATE:

### 1) Southern Ohio Grape Update

*(Excerpt of E-mail) from Maurus Brown, Small Fruit Crops Specialist, OSU South Centers*

#### Vineyard Update:

- Good vine growth, training is moving along very well
- Trellis looks good, used post pounder with in-line posts
- Good weed control. Field research staff are keeping up with the spray program.
- Grass middles have established and mowed regularly.
- Several attendees commented on the winegrape vineyard, looking forward to seeing the progress

#### Deer Fence Update:

- 10 foot high permanent deer fence around the horticulture fields
- Research field staff are doing a fence
- Fence looks good and is well-c

<http://www.reuters.com/article/lifestyleMolt/idUSLR9466820080902?pageNumber=3&>

### 2) OARDC Vineyard Update

*By David Scurlock, HCS-OARDC*

The past couple of weeks we have been fine tuning the vineyard in preparation for the upcoming harvest. Yes, harvest is quickly approaching. This year seems to be a bumper crop across the state. This is a concern to me that we may be over cropping our vineyards. This is going to have the potential of poor fruit quality and vines that may be more prone to extreme winter temperatures. The poor fruit quality comes into play if we do not have a good extended ripening period this fall. Over cropping will delay ripening. Some of the fine tuning practices that we have been doing in our vineyards have been shoot positioning (end of June and again at the end of July), basal leaf removal(basal 3-4 leaves), lateral and off bloom removal(laterals cause shading and produce off bloom), cluster thinning and hedging of our VSP(vertical shoot positioned) trained varieties. The next cultural item on the agenda is to apply bird

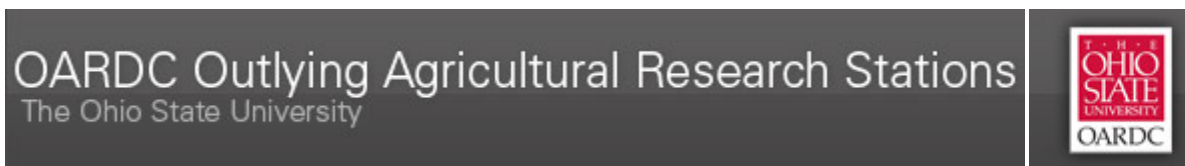
netting. Veraison is occurring on some of our varieties in Wooster. The chart Fig. 1 below depicts the percent change that has occurred for a given variety.

Figure 1

<b>Wooster Phenology Data 8-15-08</b>		
<u>Variety</u>		<u>% Veraison</u>
Frontenac gris		90
Frontenac		90
La Crescent		90
Mn 1211		90
NY 76.0844.24		95
Mn 1200		95
NY 81.0315.17		90
NY 81.0101.04		90
GR-7		80
Mn 1060		95
Vidal		0
Traminette		0
Chardonel		0
Chambourcin		0
Seyval		60
Concord		0
Pinot gris		0
Cabernet franc		0
Chardonnay		50

### 3) AARS -Northern Ohio Vineyard Update

*By Greg Johns Manager of the Ashtabula Agricultural Research Station*



Rainy weather continues...

I know, I sound like a broken record... ok, a skipping CD... but the frequent rains we've been receiving are still the top news story for Northeastern Ohio grape growers these days. If you haven't been out scouting your vineyards for disease, now is the time. We've been seeing a lot of Downy Mildew on foliage at such severity levels as to have defoliated vines. This disease can cause devastating effects in a hurry so it's important that you act quickly when you observe symptoms in your vineyard. Don't be afraid to contact your OSU Extension service for assistance in managing this disease. Powdery Mildew has been seen on clusters, mainly in training systems having dense canopies where humidity levels remain high and where protective sprays didn't reach. In addition to Mike Ellis, our Fruit Pathologist, The Ohio State University 'Ohioline' is an excellent resource for fact sheets pertaining to our handful of diseases, insects and nutritional disorders we experience throughout Ohio and it's a good idea to have them bookmarked on your favorite browser.

Here's where you want to start: <[www.ohioline.osu.edu](http://www.ohioline.osu.edu)>



Growing Season Temperatures:

Growing Degree Days at the Ashtabula Station for April 1 through July 31 this year total 1,492 GDD, just slightly behind our long-term average of 1,513 GDD. But cooler temperatures in August have added only 234 GDD to this, which, historically, might have us coming up a little short in heat accumulation for the month.

Developmentally, we're just now seeing the first sign of véraison in some of our early cultivars, like Pinot Gris and Pinot Noir. For the green-sticks reading, véraison is a French word which denotes the stage at which the berry growth phase switches over to the ripening phase. Most obvious is color change but this is also the time when sugars will begin to accumulate in the berries and many other physiological changes take place. Todd Steiner, our Enologist, could give us a week's worth of lectures on just what does occur during this period of ripening! We will begin berry sampling at the station in a couple of

weeks to look at sugar, acidity and pH of the many cultivars we grow. You'll hear more about this in future issues.

In the vineyard we're noticing some sunburn 'scaring' on exposed berries despite the fact that we removed leaves only on the 'shady', or north side of the trellis on east-west rows and on the east side of the trellis on north-south rows. We typically remove only enough leaves to expose about 40% of the clusters but I've observed some areas where more are removed. Sometimes this scaring looks a little like hail damage but in the case of sunburn, you won't find split berries or holes in the leaves. Despite the possibility of occasional damage from sunburn, leaf removal is an important tool which will improve the quality of your grapes and resulting wine, as well as help in lessening the incidence of fruit rot.

Vineyard work:

At the station this time of year we actually have a very short 'lag' time between the slowing of vine growth and preparation for harvest. This is when you'll often find us preparing for harvest by re-washing harvest lugs or setting up all of our lab equipment. If you stop by you might even find us ripping out vines from completed projects. Next week we will be installing posts in our new NE 1020 National Cultivar Evaluation and in a new Phylloxera Studies vineyard. We'll keep you 'posted' in our progress... just check out our web site!

That's all the News from the North for now.

Your OSU / OARDC team is here to help you find solutions, don't hesitate to write or call.

Greg

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