Vinews
Viticulture Information News, Week of 25 May 2015
Columbia, MO

Critical Period of Disease Management

The period from immediate pre-bloom through 5 weeks post bloom is the most critical time to protect your crop from pathogens. This period is when your crop is the most susceptible to fungal pathogens.

As the phenology of the vines progress from vegetative growth to reproductive growth the potential for disease increases. Prior to pre-bloom disease management focused on keeping the shoots and leaves protected from disease. Now that the inflorescence is just beginning to flower this calls for increased vigilance to protect the crop from pathogens.

Right now we are entering the period where attention to detail will pay dividends at harvest. The immediate pre-bloom to 5 weeks post bloom is when you should consider using your best disease management tools to control the grape disease complex.

Grape bloom is nearing or occurring depending on your location. The calyptra or "cap" may remain attached during wet weather or humid weather and be colonized by botrytis.
Photo credit: Ed Hellman, Texas AgriLife Extension

Select fungicide products that will provide protection from phomopsis, black rot, downy mildew, powdery mildew, and anthracnose. These are the five major diseases of concern. Take some time now to plan for your next three cover sprays. This will help to avoid applying the same products repeatedly which can result in the selection for fungicide resistant pathogens. Depending on your past disease problems from last season as well as disease outbreaks that may have occurred this season consider using both systemic fungicides as well as protectant fungicides in a tank mix to protect your crop. Also if your vineyard had a problem with botrytis last season continue to be vigilant in scouting during bloom.

Botrytis is typically a concern on tight clustered cultivars such as Vignoles. Unlike other grape diseases, botrytis can kill living cells and colonize them and be saprophytic—live on dead plant tissue. Once flowering commences and the caps come off, the caps are no longer living tissue and can be colonized by botrytis. Wet rainy weather or humid weather in which caps are not blown free of the flower often sets up conditions for botrytis infections. Botrytis infections at bloom often go unnoticed until after veraison. The fungus becomes latent after infecting at bloom and depending on the environmental conditions and nutrient status of the berries the disease may become active. Dry weather after veraison may result in botrytis disease never developing. The point being to continue scouting during bloom especially on tight clustered cultivars, especially if cool rainy conditions are persistent during the flowering period. Fungicide applications applied at bloom and cluster-close often will eliminate the establishment of primary infections.

Use The Best Fungicides To Protect The Crop: Avoid Repeat Applications Of The Same Fungicide And Fungicides From The Same Chemical Class

During the critical period (pre-bloom to 5 weeks post bloom) fungicides from two chemical classes are often applied. Fungicides from these two classes provide good protection to a broad spectrum of pathogens. The two classes of fungicides are the strobilurins and the sterol-inhibitors. Both powdery mildew (Michigan)) and downy mildew (Virginia, North Carolina) have been identified that are resistant to these two classes of fungicides Therefore when planning your critical period spray program implement a spray program that avoids sequential applications of the same product or products within the same chemical class. Many of the labels of both strobilurins and sterol-inhibitors limits the number of applications during the growing season. For example, the Rally label states that only 2 sequential applications of Rally or Rally and another product containing the same active ingredient as Rally or another Sterol inhibitor can be applied.

To delay and avoid pest resistance development

- Use fungicides with multiple modes of action (captan, mancozeb, copper, and sulfur) tank mixed (Don't forget about compatibility testing before tank mixing) with fungicides that have a single target site mode of action. The strobilurins and sterol inhibitors have a single target site.

- Limit to two sequential applications of fungicides from the same chemical class that are considered high risk for selecting for resistance. For example, do not apply a strobilurin fungicide followed by another strobilurin fungicide.

- Use scouting and prevention before a disease problem manifests throughout the whole vineyard. Applying fungicides after a disease problem has progressed out of hand will speed the selection process for fungicide resistant pathogens. The more colonies of pathogens developing in the vineyard, the greater the chance that one of those colonies is resistant to a particular fungicide. If a disease gets out of hand in the vineyard never use fungicide with a single target site mode of action unless it is tank mixed with a fungicide with multiple modes of action.

- Implement management practices that speed tissue drying such as shoot thinning and leaf pulling. Most all the major diseases need free-water on the tissue in order to germinate and initiate infection. Canopy management also has the added benefit of letting cover sprays better penetrate the canopy leading to increased spray coverage.

Strobilurin and Sterol inhibitor fungicides that are prone to selecting for fungicide resistant pathogens.

Fungicide Class	Trade name	Common name
Strobilurin (Group 11)	Abound	azoxystrobim
	Flint	trifloxystrobin
	Pristine	pyraclostrobin (+ boscalid)
	Quadris Top	azoxystrobin (+ difenoconazole)
	Sovran	kresoxim-methyl
Sterol inhibitors (Group 3)	Inspire Super	difenoconazole (+ cyprodinil)
	Procure	triflumizole
	Quadris Top	difenoconazole (+azoxystrobin)
	Rally/Sonoma	myclobutanil
	Revus Top	difenoconazol (+mandipromamid)
	Tebuzol • Orius 3.6F[1] • Orius 45DF[1] • TebuStar 3.6L[1] • TebuStar 45WSP[1]	tebuconazole

[1]Generic products that contain the active ingredient tebuconazole.

From the Mailbag: What growers are seeing in the vineyard.

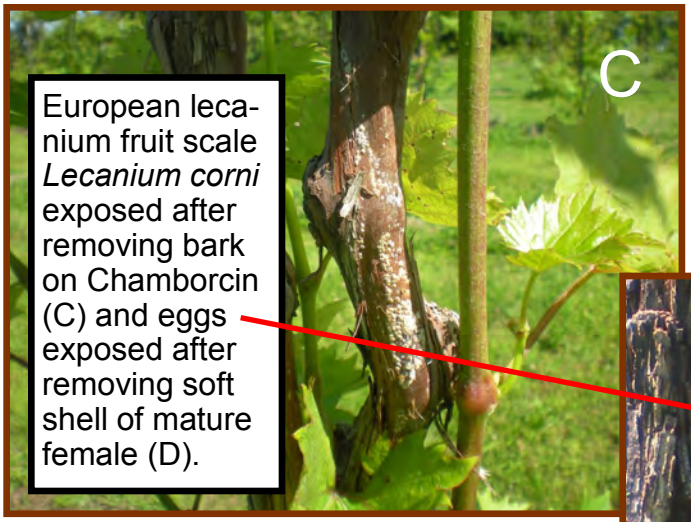
Norton grape leaf with tube galls, Ste. Genevieve, MO. Photo credit: Katie Kammler

A number of galls often appear on grape leaves. The galls on the Norton grape leaf in the picture on the left are called “pointed galls” or “tube galls” and are caused by small fly species called gall midges, *Cecidomyia viticola*. Within each gall is a small larvae. These galls are not of economic importance and no chemical control is recommended. Photo credit: Katie Kammler, MU Horticulture Specialist.

From the Mailbag: What growers are seeing in the vineyard.

I visited a vineyard this week that has been having problems managing grape scale and I wanted to share a couple of pictures to help others identify scale. If scale problems are suspected (symptoms may include reduced vine vigor, sooty mold growth, honeydew that also attract ants are all possible clues that scale insects may be present). When scouting for scale insects the process involves stripping a lot of bark off to expose the scales. In a recent post here, I mentioned how crawlers could be monitored using double sided sticky tape. In this particular vineyard, I found grape scale, *Diaspidiotus uvae* on Chambourcin and Traminette and also European Lecanium fruit scale , *Lecanium corni* in another block of Chambourcin. These blocks were treated with Superior oil near bud break and were recently treated with Lorsban Advanced.

Grape scale *Diaspidiotus uvae* exposed after removing bark on Chambourcin (A) and (B).



European lecanium fruit scale *Lecanium corni* exposed after removing bark on Chamborcin (C) and eggs exposed after removing soft shell of mature female (D).

Phenology from Gasconade County

Chambourcin 32 inch shoots and 50% of inflores-cences at bloom on May 25, 2015. Gasconade County

Vignoles 32 inch shoots and 50% of inflorescences at bloom on May 25, 2015. Gasconade County

Cumulative Growing Degree Days for the Seven Grape Growing Regions of Missouri from April 1 to May 25, 2015.

Region	Location by County	Growing Degree Days[1]		
		2015	2014	30 Year Average
Augusta	St. Charles	697	633	634
Hermann	Gasconade	654	603	616
Ozark Highland	Phelps	730	682	656
Ozark Mountain	Lawrence	665	678	646
Southeast	Ste. Genevieve	709	674	656
Central	Boone	635	579	602
Western	Ray	597	573	573

[1]Growing degree days at base 50 from April 1 to May 25, 2015. Data compiled from Useful and Useable at https://mygeohub.org/groups/u2u/tools . Click on link below to determine growing degree days in your area.

To determine the number of growing degree days accumulated in your area since April 1, click this link Search for GDD at your location using this tool.

Please scout your vineyards on a regularly scheduled basis in an effort to manage problem pests. This report contains information on scouting reports from specific locations and may not reflect pest problems in your vineyard. If you would like more information on IPM in grapes, please contact Dean Volenberg at 573-882-0476 or volenbergd@missouri.edu

Correction: The DD readings for Ozark Mountain, Lawrence County were misreported last week. The correct DD for Monday May 18 are 584 (2015), 533 (2014), and 525 (30 year average).