



Cold Climate Grape IPM News

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May 19, 2006

Stage of Growth: *Vines in Vermont have reached the 3"- 5" Shoot Stage in some vineyards.*

Disease Management:

As the old children's rhyme goes: "*Rain, rain go away, come again some other day...*"

A rainy, wet start to the growing season is not good for disease management. As of today, parts of Vermont have experienced eight days of rain. As is pointed out in the *IPM Primer* on the Cold Climate Grape website (<http://pss.uvm.edu/grape/>), there are three factors necessary for disease to develop:

- ◆ Presence of a viable Pathogen in the stage ready to infect (inoculum)
- ◆ Susceptible Plant Tissue
- ◆ Environmental Conditions favorable for infection and disease development

Rainy, wet and humid conditions are very favorable for disease development for most grape diseases. This is because rain/water is needed for fungal development, for the release and dispersal of spores, and for spore germination and infection.

Since one cannot do much about the rain, it is important to focus attention on the other two factors: (1) reducing the amount of inoculum, and (2) protecting susceptible tissue from infection. [Note: You can impact environmental conditions by keeping the canopy open during the growing season to allow light and wind penetration. This allows quicker drying of leaves and fruit which, in turn, will reduce the potential for disease. This is an important component in disease management.]

How do you reduce the amount of inoculum? Through sanitation. Sanitation cannot be stressed enough in grape disease management and includes pruning out and removing dead/diseased canes; removing/burying shriveled berries (mummies); and burying/shredding leaves during the dormant period. Also, removing wild grape vines near the vineyard if

possible. These practices are very important in all vineyards but they are extremely important in organic vineyards where options for protecting the plants from infection are limited.

How do you protect susceptible plant tissue from infection? Through the use of fungicides, whether they be organically approved or not. The goal is to minimize the use of fungicides through applying knowledge about how a particular disease develops, knowledge of the relative susceptibility of grape cultivars to specific diseases, and using sanitation and open canopies to reduce the potential for disease.

Since growing grapes will involve the use of fungicides, the following are some considerations in selecting materials to use:

- ◆ Efficacy - Fungicides are rated as to their ability to manage disease (e.g., ratings range from “not effective”, “slight”, “moderate”, “good”, and “excellent”).
- ◆ Spectrum of Activity - Usually there are more than one disease that needs to be managed in the vineyard at any point in time. Fungicides are effective against certain diseases but not others. Optimally, the material selected would have activity against all the diseases that need to be managed at that point in time.
- ◆ Applicator Risk - Fungicides vary in their degree of hazard to the applicator. All pesticides, including all fungicides, should be treated as hazardous and all safety precautions should be followed to minimize exposure. The “Signal Word” on label is an indication of toxicity category [“Caution”, “Warning”, “Danger”].
- ◆ Resistance Management - There are a number of fungicides that can be very effective but have a high risk of resistance developing in the fungal populations to them. These “high-risk” fungicides, in terms of resistance development, include the sterol-inhibiting fungicides (e.g., Elite, Nova), the strobilurins (e.g., Flint, Sovran), the anilinopyrimidines (Scala, Vanguard), and the quinoline fungicides (Quintec). In general, it is not a matter of *if* resistance will develop in the fungal populations but *when*. Therefore, they should be used judiciously and only when warranted to extend the effective life of the materials
- ◆ Label Restrictions - For example, the label might have a restricted-entry interval or a preharvest intervals that is too restrictive and make the material not an option for use in your vineyard.
- ◆ Sensitivity of plants to material - Certain fungicides will cause phytotoxicity if used on certain cultivars. For example, the use of sulfur can cause damage to certain grape cultivars. Also, the strobilurin fungicide Abound is *extremely* phytotoxic to McIntosh apple trees and its ‘relatives’ such as Cortland, Empire, etc. [Note: Since there are other strobilurin options, my advice is to avoid this material.] The fungicide label should be read carefully for warnings on potential phytotoxicity problems.
- ◆ Cost of fungicide.

Information about specific fungicides, their efficacy and spectrum of activity, is summarized in the [2006 New York and Pennsylvania Pest Management Guidelines for Grapes](#) and in other publications such as the [Midwest Grape Production Guide](#).

Dr. Wayne Wilcox, the grape plant pathologist at Cornell University, has written a review of disease management options for 2006. It is posted on the web at:

<http://pss.uvm.edu/grape/IPM/DrWilcoxGrapeDiseaseReviewMay2006.pdf>

Please note that it was written for NY growers and advisors as its primary audience but the information can be adapted to vineyards in Vermont.

What are the diseases of special concern at this point in the growing season (i.e., 1"-5" shoot stage)? Although there is a potential risk for infection by the fungi that cause black rot, downy mildew, and powdery mildew at this point in the growing season, **Phomopsis cane and leaf spot** is of particular concern. Also, since we have had so much rain, **angular leaf scorch** may become a problem this year. [Note: One good thing about all the rain we have had is that, unlike the other diseases, having wet plant surfaces is actually a deterrent for infection by the powdery mildew fungus.]

Phomopsis Cane and Leaf Spot and Fruit Rot — A fact sheet describing the symptoms of this disease and the disease cycle is located at:

<http://www.nysipm.cornell.edu/factsheets/grapes/diseases/phomopsis.pdf>

This disease can become a significant problem if the fungus is allowed to build up in the vineyard because diseased canes or pruning stubs are not removed. The pathogen overwinters as black, round structures (fruiting bodies) on infected wood and rachises. During wet periods, spores ooze from these fruiting bodies and are dispersed by rain drops onto nearby susceptible tissue. Extended periods of wet weather are particularly favorable for disease development. Below is a picture taken last year in Vermont of some of the disease symptoms.



Phomopsis symptoms on shoot.

Angular Leaf Scorch - This disease occurs sporadically but is most likely to become a problem in years when high rainfall occurs during early shoot growth. Below is a picture taken in Vermont - symptoms can be severe. A description of the disease cycle and symptoms can be found at:

http://www.nysipm.cornell.edu/factsheets/grapes/diseases/leaf_scorch.pdf

The fungus overwinters in infected leaves on the vineyard floor. During rain, spores are released into the air from fruiting structures and infect if a film of water is present on the leaf surface. Please note that mancozeb fungicides applied to manage Phomopsis, black rot and downy mildew can provide protection against this disease.



Angular Leaf Scorch

Looking Quickly Ahead in Disease Management ...

With the return of warmer, dryer weather, the grape vines will quickly grow and enter a key management time for other diseases such as black rot, downy mildew and powder mildew. Without disease management, all three disease can cause significant damage in Vermont. Excellent fact sheets on these diseases can be found at:

Black rot - http://www.nysipm.cornell.edu/factsheets/grapes/diseases/grape_br.pdf

Downy mildew - http://www.nysipm.cornell.edu/factsheets/grapes/diseases/downy_mildew.pdf

Powdery mildew - http://www.nysipm.cornell.edu/factsheets/grapes/diseases/grape_pm.pdf

Arthropod Management

Let us not forget about insects !

The **flea beetle** is an insect that can cause damage during the early part of the growing season. The flea beetle is dark metallic greenish-blue in color and is one of the first insects to enter vineyards. It overwinters as an adult and begins to feed and lay eggs as grape buds begin to swell. Adults and larvae cause damage to buds or leaves. The picture of the larvae below was taken in 2005 in a Vermont vineyard. Many vines are probably past the critical stage for damage. However, if your vines are not far along in development, scouting for adult beetles should be conducted along the vineyard perimeter on all sides, and near the center of the vineyard. At least 25 vines should be surveyed at each of the five locations. If bud damage averages 4% or more, an insecticide is warranted to prevent further damage.

A flea beetle fact sheet can be found at:

<http://www.nysipm.cornell.edu/factsheets/grapes/pests/gfb/gfb.pdf>



Flea beetle larvae feeding
on grape leaf

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