Botrytis Bunch Rot

A number of bacterial and fungal organisms can infect grapes causing bunch rot, however, botrytis is the most important. Botrytis can remain dormant as sclerotia on canes, last seasons cluster stems and on mummified grape berries. The spores of botrytis are spread by wind. Although succulent grape tissue (shoots and flowers) can be infected in spring, often botrytis is considered a late season disease of developing and mature grape clusters. Botrytis infection often occurs during wet weather conditions in which grape clusters remain wet for an extended period of time (15 hours or more). Temperature also impacts botrytis infection with botrytis infecting berries when temperatures are between 53 to 86° F. Infection of grape berries can occur with as little as 4 hours of wetness when temperatures are within the ideal range for infection (53 to 86° F). As the length of time of berry wetness increases, the greater the potential for berry infection. Recent cool temperatures and the heavy morning dews likely are extending grape cluster wetness that may result in botrytis infection. Botrytis will also infect berries more readily that have been injured by hail, insects, and animals.

To reduce botrytis infection, good vineyard sanitation and canopy management practices should be implemented. Last season’s grape cluster stems and mummified berries should be removed during pruning from the vineyard to reduce the spore sources. Leaf thinning should occur early in the season to develop the waxy cuticle of the grapes quickly, therefore forming a barrier that reduces the potential for infection. Air circulation is improved around grape clusters also by leaf thinning which results in moisture evaporating quickly, reducing the potential of botrytis infection. Fungicides also can penetrate deeper into the grape clusters when leaves are removed. Be careful when leaf thinning late in the season as sunscald can occur on grapes that have not been acclimated to sunlight. Early exposure of grape berries (pea sized) results in a thicker layer of wax and a thicker berry skin which results in resistance to sunburn and botrytis.

Damage to the grape fruit skin from animal or insect pests, hail, and even powdery mildew provides an ideal environment for botrytis infection. Grape berries in which the skin has been compromised will likely need to be protected with fungicides to prevent botrytis infection. A number of fungicides are listed in the Midwest Commercial Small Fruit and Grape Spray Guide 2009 or see Table on following page. Remember to pay attention to the pre-harvest interval of any pesticides applied.
Fungicides for the management of botrytis bunch rot in grapes.

<table>
<thead>
<tr>
<th>Fungicide</th>
<th>Rate per acre</th>
<th>PHI(^1) (days)</th>
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<tbody>
<tr>
<td>Adament(^2) 50WG</td>
<td>6-7.2 oz</td>
<td>14</td>
</tr>
<tr>
<td>Elevate 50WDG</td>
<td>1 lb</td>
<td>7</td>
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<tr>
<td>Endura</td>
<td>8 oz</td>
<td>14</td>
</tr>
<tr>
<td>Pristine</td>
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<tr>
<td>Rovral 4F</td>
<td>1.5-2 pints</td>
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</tr>
<tr>
<td>Scala SC</td>
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<tr>
<td>Vangard 75WG</td>
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<td>7</td>
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</tbody>
</table>

\(^1\)The time interval between the last application and harvest.
\(^2\)Do not apply to Concord grapes.

Grape IPM Field Days-Post Update

Thanks to all who participated in the 2009 Grape IPM Field Days. From the three sites (Viroqua, St. Croix Falls, and Sturgeon Bay) approximately 50 participated. Also thanks to site hosts, Tim Rehbein, Ruth Hilfiker, Kevin Schoessow, Jason Fischbach, and Richard Weidman. A special thanks to our speakers, Rufus Isaacs, Michigan State University, Tim Martinson, Cornell University, Dan Mahr, Patty McManus, and Steve Jordan from the University of Wisconsin-Madison. The 2009 Grape IPM Field Days were supported by grants from the EPA-Pesticide Environmental Stewardship Program and the North Central Risk Management Education Center.

Rufus Isaacs (center) dissects a grape cluster to show participants a grape berry moth larvae at the 2009 Grape IPM Field Day held at the Peninsular Agricultural Research Station in Sturgeon Bay.
Take a look at some of the grape pests that participants saw and learned about at the 2009 Grape IPM Field Days.

Grape Filbert Gall
At left is a rarely seen gall caused by the gall maker midge Schizomyia coryloides. Located within each pointed protuberance is a developing larva. These galls are seldom harmful to grapes unless extremely large numbers are present.

Grape Tumid Gall
Also called grape tomato gall. The gall is caused by the fly Janetiella brevicauda. Larva develop in the galls, but as the photo shows, the larva have eaten their way out of the gall and dropped to the ground to pupate. Grape tumid galls are seldom harmful but were apparent on Frontenac in Northeastern vineyards this year.

Grape Berry Moth (GBM)
The grape berry shows distinct reddish/purple discoloration where a grape berry moth entered the grape berry. Also apparent is webbing, all suggestive that grape berry moth is present. Interestingly, at the Peninsular Agricultural Research Station, GBM pheromone traps only caught one GBM, but wild grapes nearby the vineyard were heavily infested with GBM.
What’s lurking in or near the vineyards this week?

**Grape berry moth symptomology on wild grapes near Sturgeon Bay, WI**

**Downy mildew (right)**
Downy mildew symptomology on wild grapes near Sturgeon Bay, WI

**Powdery mildew**
On wild grapes near Sturgeon Bay, WI

**Phenoxy herbicide damage**
On wild grapes near Sturgeon Bay, WI
Fruit development on mature grape vines at Peninsular Agricultural Research Station in Sturgeon Bay, Wisconsin.

Fruit development on mature grape vines in Vernon County.

Vine development of Foch and La Crosse in the 2nd year at the Spooner Agricultural Research Station.
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<th>5 Year Average</th>
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1 Modified method

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<td>1932</td>
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1 Modified method

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 (920)746-2260 or dean.volenberg@ces.uwex.edu
Understanding Pesticides
An Introductory Course for Commercial Fruit Growers

Are you familiar with all the new pesticide groups?
Do you understand how pesticides work?
Do you know the difference between a residue and a tolerance, and how these relate to the PHI?
Do you know all of the legal aspects of a pesticide label?
Do you understand how pests develop resistance to pesticides? And how to avoid resistance?

If you answered “no” to any of these questions, you may wish to take this UW-Extension workshop for fruit growers.

**Course objectives.** The purpose of this course is to provide basic information on pesticides, such as their toxicity, the laws that govern their use, and how pests develop resistance to them. The intent of the course is **not** to answer specific questions on controlling specific pests, but instead, to lay a foundation for a better understanding of safe and effective pesticide use. Much of the material in the introductory morning sessions (Pesticide Overview Modules) will be similar to content in Wisconsin’s Pesticide Applicator Training program. If you have Pesticide Applicator Certification, some of this material will be a review; if you are not certified, this information will be a useful introduction to some of the subjects covered in the certification training program. *(But note that this short course is **not** part of the formal Pesticide Applicator Training program.)*

**Who may attend?** The target audience is all commercial fruit growers, whether just beginning or with a lifelong experience growing fruit. Those people new to farming will likely benefit the most.

**When is the workshop?** Saturday, November 7, 2009; 8:30 – 5:15.

**What is the location?** University of Wisconsin Extension’s Pyle Center, on the UW – Madison campus.

**What is the cost?** The **registration fee of $40/person** covers facility costs, refreshment breaks, lunch, and handouts.

**Who are the instructors?**
- Dr. Dan Mahr is Professor of Entomology and Extension Fruit Crops Entomologist, UW-Madison.
- Dr. Patty McManus is Professor of Plant Pathology and Extension Fruit Crops Pathologist, UW-Madison.
- Dr. Jed Colquhoun is Associate Professor of Horticulture and Extension Weed Scientist, UW-Madison.

The minimum enrollment for this course is 20 registrants by Friday October 16.
Registration will be capped at 48; registration is first-come, first served.
The final, fees-paid, registration deadline is Friday, October 23.

**No on-site registration.**

For more information, contact Dr. Dan Mahr at 608-262-3228 or email dmahr@entomology.wisc.edu.

**The Day’s Agenda**

- 8:30 – Registration
- 9:00 – Pesticide Overview – Module 1
- 10:30 – Break
- 10:45 – Pesticide Overview – Module 2
- 12:00 – Lunch (provided with registration fee)
- 12:30 – Catch-up and discussion
- 12:45 – Fruit crop fungicides
- 2:00 – Break
- 2:10 – Fruit crop herbicides
- 3:25 – Break
- 3:40 – Fruit crop insecticides
- 4:55 – Catch-up; wrap-up; evaluations
- 5:15 - Adjourn

Specific topics to be covered in the morning modules include Pesticide Categories, Understanding Pesticide Toxicology, Spectrums of Pesticide Activity, Pesticide Names, Pesticide Formulations, Pesticide Laws and Regulations, the Pesticide Label, Reducing Pesticide Risk, Avoiding Pesticide Resistance, Pesticide Movement in Plants, Pesticide Application, Understanding Label Rates, Biorational Pesticides, Pesticides for Certified Organic Production.

In the afternoon, specialists will present information about the major groups of pesticides – fungicides, herbicides, and insecticides. The emphasis will be on the characteristics and general uses of specific pesticide groups. Discussions will include conventional and biorational products as well as those for certified organic production.
Registration Form

Contact Name____________________________________________________________________________

Farm/Business______________________________________________________________________________

Address___________________________________________________________________________________

City____________________________________________ State_________ Zip__________________________

Phone (            )__________________________   Email___________________________________________

Name(s) of Attendee(s) (for name badges)

(1)______________________________________________________________________________________

(2)______________________________________________________________________________________

(3)______________________________________________________________________________________

(4)______________________________________________________________________________________

Registration fee is $40/person. Fee covers facility costs, handouts, lunch, and refreshments.
Final Registration Deadline: Friday October 23.
You will be sent a registration acknowledgement.

Number attending: ______                            Total amount enclosed @ $40 each: ___________

Make checks payable to: University of Wisconsin. (Sorry, we can not process credit cards.)

Mail form along with payment to: Fruit Growers’ Workshop
                                 Department of Entomology
                                 University of Wisconsin
                                 1630 Linden Drive
                                 Madison, WI 53706

Important – meal choice! Boxed lunches will include a sandwich, chips, fruit, beverage, and light desert.
Please check your choice of sandwich from the following list. If there is more than one attending from your
group on this registration form, place the initials of the attendee(s) next to the choice of sandwich(es).

Choice 1: Smoked turkey breast on cheese roll, with lettuce, tomato, onion. ______________________

Choice 2: Corned beef and baby Swiss on onion roll with lettuce, tomato, onion. __________________

Choice 3: Pine nut humus & feta spread and veggies on sourdough (vegetarian).____________________

The following information is optional, but will guide us in developing the pro-
gram.

How long have you been farming? a. In the process of getting started. 
                                   b. 1-2 years 
                                   c. 3-5 years 
                                   d. 6-10 years 
                                   e. more than 10 years.

Have you taken the Pesticide Applicator Training Program to become a certified applicator?   Yes       No

What is your current total producing acreage of fruit crops? ____________ acres

What are the primary fruit crops that you grow? (Circle up to 3.)

apple   cherry   grape   strawberry
blueberry   cranberry   raspberry   other (please list)