



INDEX

Apple Fruit Rot Alert
 Brown Rot Warning Continues
 Necrotic Leaf Blotch on Goldens
 Botrytis Bunch Rot
 Grape Bitter Rot
 Tissue Analysis Grapes and Small Fruits
 European Red Mites
 Watch Those Weeds
 New Zealand Fruit Tour

FFF00-10
July 12, 2000

Crop Conditions: Peach harvest is underway, with Redhaven harvest beginning in the southern half of the state. Although the frequent rain may have caused problems with disease control, there are some excellent looking crops. Apples continue to size well. Many growers have some fireblight, but the worst should be over by now. Certainly we have not seen fireblight at crisis proportions as the folks in Michigan have. Blueberry harvest continues and size and quality are excellent. Fall-bearing red raspberries are beginning to ripen. Early grape varieties should start ripening over the next couple of weeks in southern Indiana.

Special Notice: This will be the last newsletter issued on a bi-weekly basis. The rest of the issues for 2000 will be published on a monthly basis August through November.

Apple Fruit Rot Alert: An 'alert' in any business means to have heightened awareness of a specific 'situation'...the specific situation we have in mind is the combination of wet weather and the fungi that cause fruit rot, a deadly combination. Wet weather is ideal for fungal diseases such as sooty blotch and flyspeck, black rot, bot rot, bitter rot and any other rots that might have made their way into your orchard. If wet conditions do persist the most critical thing you can do is to maintain a tight spray schedule; see ID-168, "2000 Indiana Commercial Tree Fruit Spray Guide", for suggested fungicides. As always, **good orchard sanitation** is a must for control of summer rot disease problems. Remove and destroy all dead and/or dying wood from your orchard...NOW; this means brush piles, old prunings on the orchard floor, dead trees, dead limbs in trees, etc. -*Pecknold*

Brown Rot Warning Continues: As peach harvest continues, be aware of the need for sprays to control brown rot. Warm, wet, humid weather is particularly favorable for brown rot. Pre-harvest sprays for brown rot should be started no later than 3 weeks before

harvest or when fruit begins to color. Elite, Indar and Orbit are relatively new sterol inhibitor fungicides that give excellent control of brown rot. For further information on fungicides and timing of spray applications see ID-168, "2000 Indiana Commercial Tree Fruit Spray Guide". In addition to maintaining sprays for brown rot, also maintain sprays for insect pests that may injure fruit and allow brown rot to gain a foothold. Use care in the picking and handling of fruit to avoid punctures and skin abrasions. Any break in the skin of the fruit enables brown rot to more easily cause infection. -*Pecknold*



Necrotic Leaf Blotch On Goldens: Generally we first start noticing necrotic leaf blotch (NLB) on Golden Delicious in late June or July, when the weather becomes hot and sticky. Symptoms of NLB are leaf yellowing and drop; often patches of brown blotches develop along with leaf yellowing. Symptoms develop

suddenly, almost overnight, and in waves, generally from June through August. The cause of NLB is not known; however, the disorder is thought to be related to air temperature, light intensity and soil moisture. It is most severe when a cool, rainy period of 4 - 5 days precedes several hot, sunny days. Although it appears NLB is not fungal caused, the disease is reduced when ziram is included in the cover sprays. -*Pecknold*

Botrytis Bunch Rot: Many grape varieties are now at or approaching 'bunch closing', a stage when berries within the cluster begin to touch. This is an important time to apply a fungicide to protect against Botrytis bunch rot since it is the last opportunity to get coverage in the interior of the berry cluster. Botrytis is particularly severe on tight-clustered French hybrids, such as Vignoles and Seyval, and most vinifera varieties, especially Pinot noir, Riesling, and Chardonnay. Proper timing and thorough spray coverage are essential for good control. Direct the spray toward the fruit zone, and use a minimum of 100 gal/A of water. Removal of leaves around clusters before bunch closing has been shown to reduce losses caused by *Botrytis*.

Timing: There are four application times: 1. early to mid bloom; 2. just prior to bunch closing; 3. veraison (beginning of fruit ripening); 4. prior to harvest if needed. Do not make more than 4 applications of these materials per season.

Materials: Three products are registered for control of Botrytis. It is important to realize that these fungicides are effective ONLY against Botrytis. They provide no protection against black rot, bitter rot, the mildews, etc. It is also important to remember that these fungicides are prone to resistance development in the pathogen population, so they should be used carefully.

Rovral 50 WP is registered for use at the rate of 1.5 to 2 lb./A. Include a spreader-sticker, especially at the 1.5 lb. rate. Do not apply within 7 days of harvest.

Vanguard 75 WG is registered for use at 10 oz./A when used alone, or at 5 to 10 oz./A when used in a tank mix. No more than 20 oz. of Vanguard can be applied per acre per season and it cannot be applied within 7 days of harvest. Vanguard is a systemic fungicide that resists wash-off and has shown limited (48 hr) post infection activity against other diseases on other crops. It is classified as a 'reduced risk' fungicide by EPA due to its favorable environmental and toxicological properties.

Elevate 50 WG may be applied at 1 lb. per acre. No more than 3 lbs. of Elevate may be applied per acre per season. Elevate can be applied up to and including the day of harvest (0 day PHI).

NOTE: Growers in Europe and Canada have experienced loss of disease control due to the development of fungicide resistance when more than 3 sprays/year of Rovral were applied over a period of 3-5 years. Vanguard and Elevate are also at risk for fungicide resistance development. It is therefore strongly recommended that Rovral, Elevate, and Vanguard use be limited to a maximum of 3 applications per year to reduce the probability of developing strains of *Botrytis* that are resistant to these materials. In addition, growers should consider alternating applications of Rovral, Elevate, and Vanguard during the growing season. -*Bordelon*

Grape Bitter Rot: Bitter rot is a common problem in southern Indiana, especially during wet years. Unlike black rot which does not infect berries once they are past 5-8% sugar content (veraison), bitter rot attacks only mature berries. Both diseases result in black, shriveled (mummified) fruit, and some growers mistake bitter rot for black rot. A "rule of thumb" is that if a rot resembling black rot develops on mature berries (8% sugar or above), the cause is probably not black rot. This late season rot is likely to be bitter rot. The systemic fungicides (Nova, Bayleton, Rubigan, etc.) are NOT effective against bitter rot. If bitter rot is a problem, pre-harvest applications of Captan may be beneficial. However, infection likely starts at or near bloom, so good coverage in the pre-bloom and 1st postbloom spray is critical. Observe all pre-harvest restrictions. -*Bordelon*

Tissue Analysis Grapes and Small Fruits: Plant nutritional status is important for all phases of plant growth and has a direct effect on vigor, fruitfulness, cold hardiness, and other factors. Tissue analysis is the most reliable means of determining plant nutritional status. Combined with soil testing, tissue analysis can help pinpoint the source of problems and determine what measures may be needed to ensure proper nutrition of the crop. Tissue analysis samples should be collected at the appropriate time to give the most meaningful results. For strawberry, sample the first fully expanded leaves after renovation, usually in mid to late July. For brambles, sample leaves on non-fruiting canes (primocanes) between August 1 and 20. For blueberries sample leaves during the first week of harvest. For grapes, samples should be taken about 70 days after full bloom, usually early to mid August. Samples should be adequate in size. Collect 30-60 leaves for strawberries, brambles, and blueberries, and 100 leaf petioles for grapes (for grapes submit only the leaf petiole, or stem, for analysis, discard the leaf). Collect samples to represent the entire field, not just from a few plants. Sample different cultivars separately. If specific problems exist, collect separate samples from both normal and problematic areas of the planting.

There are several private companies and a few universities that provide tissue analysis. Your county extension office has a list of the ACP Certified plant and soil analysis labs in Indiana. The Midwest Small Fruit Pest Management Handbook has a chapter on tissue analysis and fertilizer recommendations. It is available for \$6.00 from the Purdue Media Distribution Center at 1-888-EXT-INFO (1-888-398-4636) or on line at <http://www.ag.ohio-state.edu/~sfgnet/>
-Bordelon

European Red Mites: I have seen a number of orchards throughout the state that have high populations of European red mites. Growers are advised to be checking their problem blocks weekly for the next few weeks to detect populations before they get out of hand. If you have a problem (more than 5 mites per leaf), you have three viable options, Pyramite, oil, or Apollo. At this point, Pyramite would be my first choice. It gives dependable control, bringing expanding populations down to low level in a short period of time. The only negative is that Pyramite appears to be fairly hard on predator mites. The summer oils will give reasonably good control as well. With the increases in populations that we have been seeing, I would expect that most growers would have to make more than one application to get these mites under control. The advantage of oil is that it is inexpensive. The disadvantages are the possibility of needing multiple applications and, most importantly, the incompatibility with captan. Applying summer oil within two weeks of a captan application may cause yellowing and loss of leaves. While this does not always happen, it occurs often enough that I wouldn't want to push it. Ziram is a potential replacement fungicide for captan that is compatible with oil. Finally, the revised pre-harvest interval for Apollo allows it to be used as a rescue treatment. As many of you know, I have had some concerns about how well Apollo would work as a rescue treatment. I am still in the process of collecting data, so the opinions expressed here are not the final word on the subject. So far, it appears to me that if you apply Apollo relatively early in the season when mite populations are just starting to get going, it works quite well. Within two weeks, the populations are pretty much down to zero. However, later in the season, when mites are really increasing in numbers rapidly, the two weeks that it takes for the mites to die off may not be acceptable. So, for now, I would prefer that you apply Pyramite or oil if you have a problem at this point in the season. Stay tuned for more information on our results for this year. You can probably bet that this will be a topic of conversation at the winter meetings. -Foster

Watch those Weeds: With rain occurring on an almost daily basis, the growth of weeds has been amazing this

year. Weeds can really hold back the growth of young trees, so try to keep them as clean as possible. At this time of the year, Roundup around young trees can be pretty risky, so I'd hand weed if practical or use paraquat, being careful to avoid contact with the trunks.
-Hirst

New Zealand Fruit Tour: If you plan on joining us for the fruit tour of New Zealand from Feb 19-Mar 4, 2001, then I suggest you register soon. There has been considerable interest in this tour and the deposits have started to arrive. Space will be limited to the first 30 that send in their money. I believe we have put together a tour that will be educational as well as fun. If you would like a registration form, please call Penny White (765-494-1301), or for more details call or email Peter Hirst (765-494-1323).



Subscribing electronically: To subscribe (or unsubscribe) to Facts for Fancy Fruit, send a message to fff@lists.hort.purdue.edu with the subject or body "subscribe" (or "unsubscribe"). You can also use the form at the web site <http://www.hort.purdue.edu/fff/maillinglist.html> to submit your subscription. Electronic access is free of charge.

Coming Meetings:

August 2 – Southwest Michigan Annual Viticulture Field Day and Steak Cookout. Southwest Michigan Research and Extension Center, Benton Harbor, MI. Contact Tom Zabadal 616-944-1477.

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