



FINGER LAKES VINEYARD NOTES

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SET MALADY UPDATE

David Peterson

In the last newsletter I briefly discussed the set problems (millerandage) that have been observed in Native American varieties throughout New York State. Having spent the past month looking at many of these vineyards, I would like to update the situation.

At this point, my best guess is that as many as 500 acres of Finger Lakes vineyards are affected in varying degrees. Part of the problem in coming up with an estimate is trying to decide which vineyards and problems should be categorized as ones with millerandage. In the last newsletter, I described 2 situations, one where the vines had no clusters at all, and the second where they had clusters that deteriorated at varying points between budbreak and set, resulting in varying degrees of crop loss (from total loss to slight). Various leaf and shoot symptoms are also sometimes associated with the set problems. At this point, I am still considering only Native American varieties in the discussion, although barren vines of some hybrids such as Aurore and DeChaunac have been observed for a number of years in some

vineyards. In many of these hybrid vineyards, however, there has been a pattern of overcropping and alternate bearing, which is not necessarily the case in the millerandage vineyards. This is not to say that the problems are necessarily unrelated, however.

The primary varieties affected appear to be Concord, Catawba and Delaware, although it has also been observed in Niagara, Elvira, Dutchess and Isabella. I am aware that the problem has existed in at least a couple of vineyards in the Finger Lakes for at least 4 years now, although it is much more widespread this year. It has been observed in Lake Erie vineyards for even longer, although it is also more widespread this year than in past years. While some blocks have shown a pattern of alternate bearing, it has appeared on the same vines for as many as 3 consecutive years. While rumors in the Finger Lakes suggest that the problem occurs on vineyards that have been mechanically pruned for 4 consecutive years or more, I have seen the problem on numerous hand-pruned blocks as well. Cane pruned, spur pruned, hand pruned, mechanically pruned, single curtain, double curtain, vigorous vines, weak vines, young trunks, old trunks, grafted vines, own-rooted

vines, acidic soils, neutral soils, etc. have all been observed with the problem. In the Lake Erie region, I even saw it occur on 2 trunks (1 old, 1 young) with a third trunk having normal set.

If this seems confusing to you, rest assured that you are not alone. Cornell researchers and Extension specialists have been investigating this problem for several years and we are confused as well. Many of the symptoms are associated with various potential causal agents, including nutrition, viruses, and even insects. All of these potential causes have been and are being investigated, but at this point none appear to be the primary factor (although they are still considered to be potential contributors). Most of us now agree that vines under stress are most likely to be affected. In fact, we feel that moisture stress may be central to the problem. With the weather pattern that has been observed over the past 4 or 5 years, moisture stress and probably poor root growth have been common. At this point, I certainly feel that no one factor is causing all the problems, but it is more likely a combination of factors (e.g. moisture stress combined with a slight nutritional deficiency) that results in the symptoms. It is also likely that the cause or combination of causes is not the same in all vineyards.

We plan to continue to put considerable effort into this problem, and we are planning some projects for next season. Unfortunately, there do not seem to be any simple answers and it appears that it could potentially occur in anyone's vineyard regardless of their style of management. I request that all growers who have millerandage in their vineyards contact me, if you have not already done so.

NUTRITIONAL ANALYSIS

David Peterson

Petiole analysis is generally considered the best means of determining the status of most major nutrients in grapevines. Soil analysis is helpful in making fertilizer recommendations when used in conjunction with the petiole test, but it is not a reliable indicator of nutrient status in the plant. The recommended frequency of petiole testing depends on the condition of the vine and the amount of fertilizer additions made

within the past year or two. As vines come into bearing, production generally increases dramatically during the first few years (usually the first 2 or 3 crop years). During this period, it is advisable to do petiole tests yearly. Where high rates of fertilizers were applied within the past year or two, it is also advisable to test yearly to determine if additional applications are necessary. For vineyards that received no adjustments or only minor adjustments over the past year or two, sampling every other year is probably adequate. Soil analysis need not be done as often, once every 3-5 years is generally adequate unless major adjustments are made.

Although we offer both complete analysis and no nitrogen tests, we recommend only the no nitrogen for all but a few situations. Foliar analysis of grapevines is generally not considered to be a reliable quantitative indicator of nitrogen status and needs. Petiole samples taken at bloom are considered to be more useful than the fall samples for nitrogen analysis, but shoot growth and trellis fill are probably still the best indicators. Heavy nitrogen applications should not be expected to make up for poor management practices or other factors limiting vine size and shoot growth. Petiole tests for nitrogen may be useful for comparing weak sections of a field to more vigorous sections or for comparing blocks of a particular variety that received different rates of nitrogen, but this test would likely be best done at bloom. Please feel free to contact me if you have any question as to whether a test for nitrogen might be warranted in your vineyard.

Samples should be taken no earlier than about 70 days after full bloom, although waiting somewhat longer than the 70 day minimum will generally provide a better assessment for some nutrients, especially potassium. They may be taken later into the fall as long as the leaves remain in good condition (but prior to harvest). **In the Finger Lakes in 1995, samples should be taken in late August for early varieties such as Aurore and in early to mid September for most other varieties.**

Samples from non-bearing vines or very lightly cropped vines are usually not very useful unless distinct visual symptoms are evident.

The "optimum levels" which recommendations are based on generally assume some crop load; non-bearing vines generally have much higher levels of most nutrients due to the lack of crop stress.

Instructions for sampling are provided with the kits. Separate samples should be taken from "problem" and "normal" areas within a block. The size of the block that a test is useful for depends on the uniformity of the field. Different varieties should be sampled separately.

The test kits are for sampling only. The collected samples are then sent back to our office and analyzed in the laboratory at Cornell. Recommendations are provided with the analysis, and I will follow up with a letter to further explain the details in the recommendations.

Petiole testing kits can be obtained from the Finger Lakes Grape Program Office between the hours of 8:00 a.m. and 4:30 p.m. or requests can be made through the mail. The kits are to be paid for at the time they are requested or picked up. Make checks payable to: Finger Lakes Grape Program. The fees are as follows:

New York State samples:
no nitrogen tests - \$16
complete analysis - \$18

Out of state samples
no nitrogen tests - \$19
complete analysis - \$21

Soil Test Kits - \$15

SUMMER DISEASE MANAGEMENT

Tim Weigle

Powdery mildew is now relatively easy to find in a majority of the vineyards that we have been in. We are not seeing a great deal of powdery mildew on the leaves at this time, we are seeing it primarily on the berries and rachis (cluster stems). We have limited experimental data from a research project conducted by Dave Gadoury, Plant Pathology, NYSAES, Geneva during the 1994 growing season which indicated that we should not see a dramatic

increase in the amount of berry infection through the remainder of the growing season. Keep in mind that this is one year's worth of data from an on going research project. If this holds true then efforts to manage powdery mildew can be concentrated on the leaves.

After recent talks with growers, looking at vineyards, discussing spray schedules, sprayer set ups, etc., I think the most important reason we are seeing an increase of powdery mildew developing in Finger Lakes Region vineyards for the second straight growing season is **COVERAGE**. The fact that we are seeing berry infection without seeing a similar level of leaf infection indicates that the fungicides applied are hitting the leaves but not getting to the center of the vine where the clusters are. At this time of year the canopy becomes very dense and the large leaves of varieties such as 'Concord' and 'Niagara', with their downward growth habit, produce a 'shingle effect' similar to that of house shingles. The increase in machine, or minimal pruning, on many varieties has also increased canopy densities making later season applications difficult. Increasing gallons of water per acre to 100 and slowing the tractor speed down to ensure adequate coverage is suggested at this time of year. Every other row spraying can work well very early in the season before the canopy fills in. However, at this time of year you must apply fungicide to every row by driving down it. Even at 100 gallons per acre you will not see sufficient spray material going through the vine to provide adequate coverage by driving every other row.

Sterol Inhibiting (SI) fungicides (Bayleton, Nova and Rubigan) can still be used in vineyards which do not have a raging case of powdery mildew. These materials will provide 14 to a maximum of 21 days protection against powdery mildew and black rot (Rubigan should not be used as the sole source of black rot protection). If powdery mildew is prevalent in the vineyard then SI fungicides should not be used due to the probability of resistance development which leaves sulfur, JMS Stylet Oil or Copper and Lime. All of these materials depend on good coverage (JMS Stylet Oil should have excellent coverage as it kills by smothering) to be effective. If you do not think it is feasible to increase the rate of water per

acre to 100 gallons and slow the tractor down, chances are good that these fungicides will do the same job if they stay in the pesticide shed. We are still at the lower end of the learning curve with JMS Stylet Oil. At this point in time there are more materials that we know should not be mixed with Stylet Oil than there are materials that we have successfully applied as a tank mix. Read the label carefully when thinking of using JMS Stylet Oil. Use of Stylet Oil can be disruptive to a sulfur program as you may not apply sulfur with or following an oil application for 21 days and Stylet Oil should not be applied within 14 days of a sulfur application. **EDITOR'S NOTE:** Phytotoxicity was observed in one Aurore vineyard when JMS Stylet Oil was applied at temperatures above 90 °F.

Downy mildew is still a concern due to late season leaf infections in 1994 providing inoculum for this year. We have had evening rainfall events recently in the Finger Lakes which provided infection requirements for downy mildew. Monitor your vineyards to determine if leaf or cluster infections have occurred. Copper and lime remains the best option for existing downy mildew infections. Ridomil Copper applied in the post-bloom application will have provided coverage for these infection periods. Ridomil Copper has a 66 days to harvest interval so be careful not to apply this material within 66 days of your projected harvest date.

Botrytis bunch rot is a yearly event with some years being worse than others. The best management strategy for Botrytis bunch rot is an integrated approach of leaf removal in the fruiting zone, prior to bunch closing, combined with the application of fungicides. At this point in the growing season Rovral 50WP (1.5-2 lb/A) can be used for management of Botrytis but proper timing and adequate spray coverage is essential. Two applications of Rovral should be made. The first when Botrytis is first seen or when the first berries reach 5° Brix, whichever comes first, and the second application 14 days later. A third spray may be required for late harvested varieties if the interval between the last spray and harvest exceeds 4 weeks. If only one application can be made it should be timed when the crop

average is 5° Brix. **NOTE:** Growers in Europe and Canada have found Botrytis becomes resistant to Rovral when more than 3 applications per year were used over a period of 3-5 years. Therefore, it is strongly recommended that Rovral use be limited to a maximum of 3 applications per year.

We have seen black rot move to the berries but this disease does not seem to be as prevalent or cause as much concern among growers as powdery mildew. Continue to monitor your vineyards for this disease. We do not have any materials which will eradicate existing black rot infections. The best we can do is to limit the spread of the disease by applying Nova, Bayleton or Ferbam.

GRAPE PROGRAM PHONE & FAX NUMBERS AND E-MAIL ADDRESS

As a reminder, the phone number for the Finger Lakes Grape Program has changed within the past year. The number is (315) 536-5134. This is my direct line, so don't be surprised if I answer! If you wish to call Cornell Cooperative Extension-Yates County, the number is (315) 536-5123. Although they can transfer calls to the Finger Lakes Grape Program, we request that you use our number. If you wish to send a Fax, the number is (315) 536-5117. For those with access to E-Mail, contact me at david_peterson@cce.cornell.edu.



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