

LWWC Selected as US EPA PESP Champion

For the third year in a row, LWWC was awarded Pesticide Environmental Stewardship Program (PESP) Champion status. PESP is a voluntary US Environmental Protection Agency program that forms partnerships with pesticide users to implement pollution prevention strategies and reduce the health and environmental risks associated with pesticide use. Thirteen champions were selected this year from over 130 PESP program members. LWWC was recognized this year for the leadership role it played in the development of Wine Institute and California Association of Winegrape Growers' Code of Sustainable Winegrowing Practices Self Assessment Workbook as well as for "continuing innovations in the assessment and diffusion of a sustainable winegrowing model among your members". For more information on the PESP program see www.epa.gov/opbppd1/PESP/.

CALENDAR OF EVENTS

Nov. 17, 2004

8:30-10:30am breakfast meeting at Central Valley Waste Management Services 1333 East Turner Rd., Lodi, titled "Fertilizers and Soil Amendments for Lodi Vineyards". Representatives and/or consultants from five companies will present information on one or two of their new generation fertilizers and/or soil amendments (companies are ActaGro, EverGreen Organics, Agri-BioLogik, Grover Soil Solutions, and Western Farm Service). Dr. William Horwath, soil scientist from UC Davis, will start off the meeting with a presentation on the current scientific basis for the effectiveness of these materials.

Dec. 7-10, 2004

2004 Pierce's Disease Research Symposium. Coronado Island Marriott Resort, Coronado, CA (San Diego). For more information call Dr. Athar Tariq at (916) 322-2804 or email atariq@cdfa.ca.gov. A detailed program will soon be viewable at: www.cdfa.ca.gov/phpps/pdcp/ResearchSymposium/gw2004symp.htm



LODI - WOODBRIDGE WINEGRAPE COMMISSION

RESEARCH • IPM NEWSLETTER

Fertilizers and Soil Amendments FOR LODI VINEYARDS

BY CLIFF OHMART
LWWC Research/IPM Director

I am sure none of you need to be reminded of the importance of vine nutrition in producing the highest quality winegrapes and therefore the highest quality wine. However, despite its importance there are many indications that we have much to learn about how to achieve good vine nutrition. One of the most obvious is the fact that the nitrogen critical values in petiole samples established by University research many years ago no longer seem to apply, according to many growers, PCAs and consultants that I talk to. That is because the rootstocks and clones being used now are different to the ones used years ago when the critical values were established. Furthermore, there are arguments over what tissue should be used for vine nutrient analyses, petiole or leaf blade. Then there is the argument over the effectiveness of foliar application of fertilizers vs. soil application or fertigation, not to mention the argument over the best time to apply fertilizers, in what amounts, and how often.

Another indication that we have a lot more to learn is the large number of types and brands of fertilizers and soil amendments that are being recommended by consultants and Ag suppliers, each one we are told is essential to high yield and high quality. The increasing emphasis on sustainable farming practices has also contributed to our need to know more through the promotion of using fewer traditional chemical inputs and increasing the use of 'alternative' inputs that are said to add organic matter and/or stimulate the soil microbial community. The end result of all of this is a barrage of products and information, some substantiated but much of it unsubstantiated, for growers to consider when deciding on their vineyard nutrition program. In an attempt to distill some of this information for Lodi growers the Lodi-Woodbridge Winegrape Commission has organized a meeting on November 17 where 5 companies will present information on their soil amendment/fertilizer products (see calendar of events for meeting details). Moreover, Dr. Will Horwath, a soil scientist from University of California Davis, will start the meeting off with a presentation on

the scientific basis for the effects these products might have on vineyard soils and vine nutrition.

A useful start in approaching the topic of fertilizers and soil amendments is to define them. A fertilizer is something that is added to the soil (or sprayed on the foliage) that provides nutrients for plant growth, while an amendment is something added to the soil that improves its physical properties, such as water or nutrient holding capacity, aeration, structure, and drainage. Some materials accomplish both functions. For example, compost acts as a fertilizer by releasing nutrients and acts as an amendment by adding organic matter which promotes soil aeration and structure.

Fertilizers and soil amendments are classified in two broad categories, organic and in-organic. Organic materials are ones that either are or were living at some point and inorganic ones are either mined or man-made. However, as our ability to manipulate things in the laboratory increases, some new products seem to fit in both categories. For example, some fertilizers are produced by fermenting organic material, digesting the result and then inoculating the material with micro-organisms. Is this material organic or man-made? It seems like it is both to me.

Once a material has been classified according to how it was produced we can then put it into one of several categories based on its function once it is applied to the vineyard. First, there is the traditional category of fertilizer materials that provide readily available nutrients to the vine as soon as they are applied to the soil or canopy. Compost is another traditional category of soil additive that provide nutrients to the vine, but in a more time release fashion than synthetic fertilizers. They also improve soil structure by providing organic matter that is broken down by soil microorganisms, a process that promotes the formation of soil aggregates. A newer category of materials are those produced using some kind of fermentation process. Often the results of the fermentation are then inoculated with microorganisms that supposedly benefit soil processes and improve vine nutrition. These materials have two possible

functions and some are advertised as doing both. One is to provide nutrients for the plant, the other is to stimulate the soil microbial community from which the vine then receives benefits through nutrient uptake and/or improved soil physical properties.

One of the biggest problems in dealing with the vast array of fertilizers and soil amendments available to use in the vineyard, particularly the newer materials, is the lack of rigorous scientific experiments on their performance. There is, however, no shortage of grower testimonials. I am sure many of you have heard someone say "I was about to take the vineyard out because it was producing so poorly, I applied the material and the vineyard really turned around". There are at least two reasons for the lack of experiment-verified data on many soil additives. One is that there is much less money and far fewer scientists to do this kind of work than in the past. Years ago when synthetic fertilizers were the cutting edge of crop nutritional management, there were plenty of applied researchers and farm advisors available to test these materials in research trials. The support for this kind of work has been drastically reduced so that we have many new materials to test and very few people and dollars to do the testing. The other reason is that many of the newer soil additives have several potential functions, such as nutrient addition as well as improved soil structure, compared to the older synthetic fertilizers that could be designed to add just one nutrient to the soil so its effect on plant performance could be tested. It is very difficult and expensive to set up a research trial to test a material that has potentially several functions and effects on the vine.

Despite all of the unknowns I have discussed regarding what materials can be added to the soil to achieve optimum vine nutrition global competition in the wine industry forces us to move forward anyway. Our challenge is to gather the best information possible for our decision-making and the meeting on November 17 on fertilizer and soil amendments for Lodi vineyards is a step towards meeting that challenge.

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It was a mixed year of good and bad, but the dominant theme was a year that was early! The 2004 season started a little early and ended even earlier, the earliest on record. Good news was the grape glut has dissipated, with some upward movement of minimum prices. The smaller crop allowed wineries to adjust tank space and the 2004 vintage holds a great potential for wine quality to help further recognition of the Lodi district. The ongoing challenge is to not only to maintain quality, but also increase it for consumer value.

Budbreak began only a little early, but by the start of vintage we were way ahead of any year that most anyone can remember. Although the season was relatively mild with fewer than five 100-degree days at the end of August and into September, the very dry and mild spring seemed to accelerate vine development. July 23rd marked the beginning of harvest in earnest, a full week ahead of 1997 and about three to four weeks ahead of normal.

The variety progression of ripening started out nice and orderly, but quickly turned to most everything being ready for harvest with the exception of very late season varieties such as Cabernet Sauvignon, Petit Verdot, Malbec, Carmenere, Teroldego and Trincadeira. Crop loads were lighter than average from generally lower cluster numbers and smaller clusters on all varieties. All varieties were affected with lower than average yields, but some varieties suffered more so. And of course as always there were exceptions by site and vine age. Varieties worst affected seemed to be Chardonnay and Syrah. Overall crush figures will probably be close to last year with the help of a good flower set and some more new production.

The reasons for fewer clusters and smaller clusters might go back to last year's extremely dry soil conditions and excessive heat during July, the hottest July in 20 years. Bud development for this year's 2004 crop was probably hindered at that time last year. Curiously, that extreme followed the coldest April in 20 years. So while this year we had generally mild temperatures and relatively good soil moisture after some good late winter rains (even though total rainfall was less) there were fewer viable clusters and smaller ones at that. Zinfandel and Merlot were so light last year that both those varieties seemed to be less affected than some varieties such as Syrah, Chardonnay and Muscat blanc, among others. Some varieties made up for the fewer and smaller clusters with better berry set from the perfect bloom conditions in late April and early May.

That's because although this year's clusters were formed last year, the flowers develop in the spring of the year in which the harvest occurs.

Across varieties, sugar levels soared; while rot incidence remained low. Total acid levels and pH were very good, colors excellent and, fruit flavors very good to excellent. Powdery mildew did make some threat to be a problem early on, but that seemed to dissipate with hotter temperatures in mid season. Compared to the severe and widespread spider mite problems of last year there were few really bad situations this year. Overall, a smaller crop and general conditions seemed to provide the opportunity for very good to excellent fruit quality.

Harvest was hard to keep up with this year, but wine quality should rival the 1999 vintage. Many growers experienced "picking for flavors" with several wineries. Even with the early season some blocks reached fairly high sugar levels as grower anxiety levels followed. Sugar levels are the easiest way to follow fruit ripening, unfortunately it's not the best way to harvest for quality of fruit. The end result and worthy goal of better quality wine should make the new experience easier for next year (probably). We may be discussing the topic a little more in the future.

Regulated Deficit Irrigation (RDI) is now widespread, and in working with wine-makers more closely, growers are learning to more effectively use less water and still not excessively stress vines. There is some concern statewide that we are facing a new disease problem or vine disorder, especially with Syrah, or maybe just too much stress. I am not sure, but it may involve an unidentified virus or virus like agent in the case of Syrah while across varieties, vine water status, heat stress and vine nutrition have caused some problems. Nobody has good explanations yet. Vineyard practices have changed dramatically in the last ten years related to irrigation, trellising and vine nutrient management. In addition, we have had some extreme growing conditions. Investigations are beginning statewide and many people are discussing it.

Besides some suspicious virus like problems in Syrah, I have seen more than a few vines that are deficit irrigated and are on a very fine line of water availability. In those cases there can be localized drying of soil, less active roots and just not enough water, available fast enough for vines to meet water demands during hot spells at or above 95 degrees. Long term vine health and productivity still need to be considered even as quality issues tend to dominate a grower's

agenda. These will also probably be topics that are part of future meetings. In any case keep in mind that everything in moderation still seems to be a good starting point whether you have vineyard designated wines or fighting varieties as a goal. So when it turns hot, irrigate.

On the economic end, although prices didn't dramatically improve, minimum prices did come up a little. There were other encouraging signs of demand and price improvement, but it depended on variety, vineyard site and winery. Relatively low prices combined with a smaller crop tend to be discouraging for individual growers (no news there) but the doldrums of oversupply should be behind.

One major piece of good news is that the Glassy Winged Sharp Shooter (GWSS) program has been successful at keeping it from establishing here. The money and time in that effort has been well spent. The big piece of bad news is that in the meantime, the Vine Mealy Bug (VMB) has arrived and is being found in more vineyards here and across the state. There is some hope to stabilize the situation, but it may be expensive and near impossible to stop it from gradually spreading. There is hope for localized eradication in early finds, but it may be a delaying effort overall. It is possible we can learn to "live with it"; it will be an added expense at the very least and possibly an IPM problem of large proportions. The County Ag Commissioner has conducted a survey this season to detect the extent of VMB presence in the county. You should be on the lookout for excessive honeydew and sooty mold stains on vines, in addition to "candle wax" deposits of VMB waste. Learn what to look for and if you have any questions about control talk to your PCA, the LWWC staff or me about any questions you have.

And finally with the end of another season there is still plenty to think about before or soon after a well-deserved vacation. A basic to do list would include: evaluate your fertilization program and any problem soil conditions; select vines for monitoring vine balance to be measured later by pruning weights (see LWWC Newsletter December 2000); identify and mark virus infected vines for removal; measure irrigation system uniformity and identify weed problems to make control decisions. Each one of these items is a discussion by itself, but now is a good time to consider them before leaf fall and into dormancy. Talk to your PCA and/or winery filed rep about some or all of these concerns as time allows over the next year. Or give me a call, answering questions or helping you find someone who can, is still part of my job. The challenges ahead are many, but next year and the long-term future still look good for the district.

Robert Indelicato is a business man to the core, but he didn't grow up in the fast paced business world of a city. He was born in Stockton and grew up on a vineyard right next to the Delicato Winery in Manteca. Spending most of his early summers working and driving tractors in the vineyards, he learned the importance of growing up on a farm and this would later influence his lifestyle. He attended California State University, Fresno and majored in enology and took as many viticulture classes as he could fit into his schedule. After college, Robert was hired as winemaker for Ballard Canyon Winery, a small central coast winery producing about 5000 cases a year.

Wanting to get back to his roots, he decided to head back to the central valley and join the Delicato Winery team. He began working as the assistant national sales manager and was quickly promoted to product manager where he began developing an international marketing plan and later became the international marketing director. At the time, in the mid 1980's, American wineries were paying very little attention to international markets. Compounding the difficulty of entering the international sector was a very strong American dollar. Early on, his goal was to have 10% of sales to come from the international market. That goal was quickly met and now about 15% of the wine sold by Delicato winery is through international sales.

He left Delicato Winery after 18 years for two reasons. He and his wife wanted to raise their three children on a farm and he wanted to pursue a career in business consulting. He bought 90 acres at the east end of Harney road and in 1999 planted Petit Sirah, Cabernet Sauvignon, and Chardonnay and just finished building a home on the property.

Robert's guiding philosophy for his vineyard is "don't do something unless it pays for itself", a philosophy heavily influenced by his good business sense. This very sustainable philosophy is applied to all aspects of his operation but is most apparent with his pest management.

Robert uses five factors to influence his pest management decisions. He takes note of where the pest population is concentrated, vine vigor, crop tonnage, vine age and overall vineyard health. He also believes in only spraying the part of the vineyard that needs to be sprayed. For example, he'll spray only the vineyard edge along the main road where dust causes mite outbreaks. He says that the cost of hand spraying 15 vines on the edge of the vineyard justifies not

having to spray the entire vineyard later in the year if nothing were done and the population continued to spread.

Robert added a sixth factor to his pest management decision making process, after attending several LWWC sponsored pest management seminars and field days on keeping pest monitoring records. Robert decided to start keeping pest monitoring records in 2003. These records proved their value when he was able to save a miticide spray this year. The mites in his Cabernet were building to where in some spots 90% of leaves had mites. The situation was beginning to worry his PCA who wanted to do something about it. Robert felt they could hold off spraying a little longer, because the damage was unsubstantial, the crop was relatively light, and clusters were ripening well. As the weeks went by, his PCA became even more concerned thinking that the problem was worse than the previous year. However, Robert had also been monitoring the vineyard, but kept a written record. According to these records, the mite numbers were not as bad as the preceding year, a year that he didn't spray, so Robert felt a spray still wasn't justified. In the end, the vineyard was fine and averaged 26.5° Brix at 7 tons. Robert is quick to mention that his PCA has saved him in the past where pests were getting out of control and Robert missed the problem.

The interaction Robert had with his PCA over the mite problem was a difficult one, but all too often with many growers and PCAs it doesn't happen because pest monitoring records are not kept so there is nothing concrete to interact about. In this case, the monitoring records saved Robert a spray, but next year they might justify a spray. Either way, Robert sees that record keeping provides more information for making an informed, intelligent decision. Robert asserts that the only way to learn something (whether you should or shouldn't have sprayed) is by not spraying.

Robert also believes that the more eyes in the vineyard the better, so he has been sending his field man to LWWC pest management seminars and field days. Robert

has further trained him on natural enemy identification and engages him weekly about what he is seeing in the vineyard.

As Robert gains more and more knowledge about his vineyard, he has become increasingly comfortable and confident with his management abilities. He analyses the cost and effect of anything he does in the vineyard and how this affects his yield and wine quality. Every year he makes wine from each of his blocks, so that when his contract expires, he will have a vertical display of the wines that his vineyard can produce and be in a stronger position to negotiate a better contract. He also sees the results of his viticultural practices in his wines and makes adjustments to the vineyards if needed.

Other sustainable practices include a grass cover crop that he allows to reseed every year. Since most of his vineyards are on rolling hills the cover crop adds a stable footing for his tractor work. He has also installed several owl boxes. He used to spend two hours every day driving around on his quad killing gophers and ground squirrels. He heard about owl boxes at a LWWC event, put several in, and now doesn't worry about rodents. Anything he does in the vineyard has to justify the cost. The upfront cost of the owl boxes was easy to justify when he calculated the hours he spent every day trying to control vertebrates.

Roberts next cost savings experiment is to reduce his sulfur inputs. He is on a 100% sulfur program every 7 days, but has talked to growers in his area who only sulfur 2 times a year with no problems. Next year he plans to start extending his dustings out significantly, which will not only reduce his costs, but it should also improve his natural enemy population.

Robert has proved that having a good business mind is an extremely valuable asset when growing winegrapes. By constantly analyzing why he is doing something in the vineyard, is there benefit, and is it going to pay him back, Robert will continue to be a successful and sustainable winegrape grower.



ROBERT INDELICATO
ACRES IN THE DISTRICT: 90
VARIETIES GROWN:
Petit Sirah, Chardonnay,
Cabernet Sauvignon