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Vineyard Nutrition Notes - 1

The first step in determining the nutritional needs of grapevines is to run a comprehensive soil analysis throughout the vineyard. Testing the topsoil (0 - 12") as well as the subsoil (12 - 24") is highly recommended for a vineyard suitability test. At least five or six individual samples should be taken to make one composite sample for lab analysis. The samples should be taken from each management area with the same soil type, color, variety, and rootstock. Submit separate samples from different areas. Be sure to mark the spots (GPS co-ordinates) where samples are taken so that each year those specific sites can be re-sampled for best results. The results are the baseline for your fertility program and are to be accompanied by later petiole analyses.

Soil Analysis is the basic starting point in indicating your vineyard needs, but does not reveal the entire picture of soil/plant interactions. There are many factors that may affect how a vine absorbs nutrients from the soil such as: texture, C.E.C., varieties, rootstock, cultural practices, drought conditions, insects, weeds, disease, etc. Petiole (leaf stem) analysis is the single most reliable method of determining the nutritional status of your vineyard and provides an accurate basis for laboratory recommendations.

Petiole Analysis (predictive) determines the nutritional sap flow of nutrients that may be deficient or abundant in the next 7-21 days before they can be visually seen as vine distress, which by then is too late for the vine to deliver its maximum genetic potential for the season. It is always advantageous to be proactive rather than reactive in achieving balanced nutrition in your vineyard. Petioles may be sampled several times during the growing season starting at bloom-time.

Bloom-time sampling should occur when approximately 50% cap-fill is achieved. Make sure and follow the same principles as above and consider different varieties, problem areas, rootstocks, age, etc. Randomly select across the area and sample the subtending leaf of the basal cluster. Remove the petiole (stem) from the leaf blade and retain the petiole. Walk diagonally across the sampling area by taking the petiole from similar vines that represent the vineyard's conditions. Take at least 40 petioles to represent one composite sample of the sampling area. Make sure and rinse off the petioles with bottled water and store in a paper bag (do not store in plastic as they may degrade while in transit to the lab).

Veraison stage is the next important sampling time. Follow the same sampling procedure as above but choose the most recently fully matured leaf on the vine. This would be the last leaf on the shoot to achieve full size.

For the most comprehensive vine nutrition, it is highly recommended taking petiole samples starting at bloom-time and sampling the most recent fully expanded leaf petiole/stem bi-weekly. At the end of the season, follow with a leaf analysis to assay accumulations and to see how the current year's program may be adjusted for the following year.

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The petiole analysis will not only contain Nitrogen-Nitrate ($N\text{-}NO_3$) and Phosphate ($P\text{-}PO_4$) but also Potassium (K), Calcium (Ca), Sodium (Na), Magnesium (Mg), Zinc (Zn), Iron (Fe), Manganese (Mn), Copper (Cu), Boron (B), Molybdenum (Mo) and Sulfur (S). all of which are necessary for the most reliable recommendations necessary for Maximum Economic Yields.

By combining, soil and petiole analysis, growers can gather vital nutritional data to predict the vines' nutritional needs. This can increase the growers' yields and quality with [often dramatically] lower inputs of fertilizer, water, fungicides, herbicides, etc. by accurately determining the vine's needs and spoon-feeding the plants what they need when they need it at the critical stages of growth.

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