

The post-harvest period up to leaf-fall is so important to lay the foundation for grape quality and yield success next season. It is a principal time for restoration of carbohydrate and mineral nutrient reserves.

The early season development of the grapevine from budburst until flowering requires mineral nutrients and carbohydrates from the roots, trunk and arms where they are stored as reserves.

As leaves are the main source of carbohydrate production via photosynthesis, they need to remain healthy, well hydrated and fully functional after harvest. This means that care should be taken to minimize leaf loss due to water stress, pests and fungal diseases and machine harvesting until the leaves naturally senesce and fall.

IRRIGATION

Vines should be watered normally during the autumn in order to ensure adequate leaf function for the remainder of the season for normal restoration of carbohydrate and mineral nutrient reserves.

In general, minerals are acquired from the soil but in autumn significant amounts move from the leaves to the roots and woody parts of the grapevine before the leaves fall. A healthy, functional, hydrated leaf canopy is important for continuity of transpiration and photosynthesis on which mineral nutrient uptake depends.

Irrigation in the winter during dormant season might be necessary in the absence of rainfall events. In fact, grapevines develop and expand their root system during this period. To allow this process to occur, the soils must be maintained in relatively moist conditions.



To do: Maintain the grapevines in a non-deficit water status (root-zone at close to field capacity). Irrigation requirements can be estimated from evapotranspiration and rainfall.

MINERAL NUTRIENTS

Post-harvest fertilization before leaf fall might be necessary based on results from petiole sample and soil sample analysis to ensure that adequate nutrient reserves are already in the plant the following spring.

Nitrogen - Post-harvest is an excellent time to provide [nitrogen](#) for uptake and storage to support new growth the following season. Small quantities of nitrogen fertilizer typically ≤ 10 lbs N/acre can be applied favorably via drip system. If nitrogen applications are made close to leaf fall, the uptake of this element will be low, and it will be leached through the soil profile by heavy rainfalls or through atmospheric volatilization.

Potassium - If the vines are potassium deficient, late fall is an excellent time to apply potassium fertilizer, allowing winter rainfall to move the material into the soil. This nutrient can be applied via banding or broadcasting. Rain can move it into the root zone making it available for uptake during the growing season. Potassium can also be added between budbreak and veraison with adequate quantities of water for its assimilation. Potassium can also be applied via drip system immediately after harvest and again between budbreak and veraison. Fertilization should be completed before veraison.

Phosphorus - Phosphorus can be added via banding or broadcasting in the fall or early spring to take advantage of any rain allowing to move it into the root zone. It also can be applied via drip system.

Magnesium - Magnesium fertilization can be done any time of the year because it is not rapidly leached through the soil. Fall application is often convenient and allows the nutrient to dissolve and move with winter rain and to be available for spring growth.

Boron - If a vineyard has an identified need for boron, the fall or winter are ideal times to make applications. With a drip irrigation system, post-harvest injections of boron are very effective. Boron can also be added by broadcasting. Rainfalls or irrigation are critical to move the Boron into the root-zone. Remember that boron is only needed in small amounts.

Micronutrients - In terms of micronutrients, they can be added to the soil by broadcasting or banding in the autumn but these minerals are preferably to be applied via foliar application 2 weeks prior to bloom up to bloom. Foliar application around bloom is the most efficient method to add these nutrients in case of deficiency.

To do: Apply proper amount of fertilizers if needed.

P.S. The objective is not to encourage vegetative growth. An over-irrigation or over-fertilization will cause a delay of vine dormancy.

DISEASES

Defoliation caused by diseases may reduce the photosynthetic capacity of the canopy after harvest. If diseases have been well controlled during the growing season then there is generally little requirement to apply spray after harvest if conditions remain dry. However, if there has been a build-up of diseases earlier in the season and late summer/autumn is wet, post-harvest fungicide sprays may be required. It is important to control infections of all fungal diseases during the post-harvest period, even in non-bearing vineyards.



Powdery mildew - If left unchecked after harvest, powdery mildew can develop overwintering spores from which infection can spread in the following season. Severe infections can disrupt the production and storage of carbohydrates needed for the following spring. Apart from impaired reserves, affected vines fail to harden-off and are susceptible to winter chill. It is also important to prevent the powdery mildew from establishing in the buds of young grapevines associated with self-infecting flag shoots, for the season to come.

To do: A single early-autumn sulfur application should prevent infection.

Downy mildew – Downy mildew thrives in the warm, damp conditions so outbreaks can occur after harvest, especially if tropical moisture moves in. Left unchecked, late season downy mildew can cause early leaf drop, which can lead to insufficient carbohydrate reserves. Preventative sprays of mancozeb or captan may be applied as needed to prevent downy mildew infections, and systemic materials such as [phosphorous acid](#) may be required if wet weather persists.

To do: One to two mancozeb or captan applications should prevent infection, but other spray materials may be required if wet conditions persist.

P.S. The [2020 Texas Grape Pest and Weed Management Guide](#) from Texas A&M AgriLife Extension Service contains an extensive list of fungicides that can be used in Texas vineyards.

WEED CONTROL AND COVER CROPS

Post-harvest is a good time to look at weed control and cover crops for soil erosion protection.

Application of herbicide against weeds in the vine row is easier after vines are hedged at harvest.



To do: Spray a systemic herbicide to kill weeds like Bermuda grass, Johnson grass and Silverleaf nightshade. Pay attention to herbicide drift!

Post-harvest is also a good time to plant [cover crops](#). Planting cover crops at this time will help to reduce wind and water erosion.

To do: Plant a winter annual cover crop in the vine rows.

Finally, take a tour around the rows and see what needs attention and repair in terms of trellis, and vines. If you noticed vines with red leaves, curly leaves or other symptoms, these are candidates for virus, and should be tagged and tested. Count missing vines and order replants.

Get out to the wineries and taste your wines especially the lots that are not yet blended. Taste with the winemaker and discuss together what was good and bad about the vintage.

Sit down and review the season. How was the canopy management and overall vine balance? What was the water status of your vines? Were there any vine nutrition issues? How was the vineyard floor management? How was the disease and pest control programs? Try to figure out the good and the bad!