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VINE AND TREE CROP IRRIGATION WITH A RESTRICTED WATER SUPPLY

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The 1977 river run-off will be much below normal and growers who rely on surface supplies or Friant-Kern water may be facing severe shortages. Water costs will rise as pumping of ground water increases, lowering the basin's water table. Growers with inadequate or expensive water supplies will want to maximize irrigation efficiency.

Irrigation water applied to a vineyard or orchard transpires by the plant, evaporates from the soil surface, and frequently infiltrates below the root zone. It is possible to save water by reducing surface evaporation or controlling depth of soil-water infiltration; however, there are no practical methods of reducing transpiration without stressing the plant.

Minimizing Evaporation Losses

V-bottom furrows or small flat furrows minimize surface evaporation by reducing the amount of surface area wetted. This is also possible by irrigating alternate middles since only one-half or less of the soil is wetted at each irrigation. Furrows should be close to the tree or vine row so that water is placed in the root zone. Avoid wide or high berms. Irrigation must be more frequent when using small V-type furrows and/or alternate middles since less water is applied and stored with each irrigation.

Regulating Depth of Infiltration

Water is usually applied in excess of what the vine or tree actually needs so that some water moves below the root zone and prevents salt from accumulating (leaching requirement). The leaching requirement increases with the salt content of the irrigation water. In Tulare County, most vineyards and orchards receive good quality, low salt water and no salt problems are anticipated if leaching is skipped in this short supply year. Excessive applications should be avoided this year so that water does not infiltrate beyond the active root system. Root density of grapes and fruit trees is often greatest in the top 1-3 feet of soil.

Depth of wetting can be determined with a soil auger or tensiometers. The wetted depth can also be estimated since one inch of water wets about one foot of sandy loam or loam soil and about one-half foot of clay loam or clay soil.

Low volume drip irrigation systems save water primarily by reducing deep percolation, run-off and surface evaporation. Properly designed and operated sprinkler system, can also save water by reducing deep percolation and run-off.

Eliminate Summer Weeds

Eliminate summer weed covers to save the water they transpire. Grass covers are grown during summer months for reducing compaction, sunburn and spider mite activity; however, if water is short it may be advisable to skip the cover and save the water for the vines or trees.

Efficient Delivery System

Proper land leveling, length of irrigation run, return flow systems, and ditch lining are management practices which can pay for themselves in savings of water, labor and effectiveness. Maintain pumps to reduce costs and maximize delivery. Losses associated with a delivery system or pump inefficiencies rob water supplies from crop production and should be corrected.

Winter Irrigation

In Tulare County, the water supply ranges from adequate to limited. If supplies for the summer are adequate, a winter or spring irrigation is advisable to fill the soil reservoir, encourage spring growth and help prevent stress later in the season.

Non-productive Vineyards and Orchards

This is the year to delay planting or remove vineyard and orchard blocks destined for removal in the near future. This will release valuable water for productive, profitable trees and vines.