

# IRRIGATION NEWS

## Trellis Systems and Water Management

Growers are always looking for an edge that will reduce their production costs and increase their yields. For grape growers, that edge may exist in overhead trellis production systems.

Winepress Vineyards is a partnership between Peter Miroyan, his brother Bob, and their cousin John Paboojian. Together, they farm 480 acres of vineyards southwest of Selma. Of this, they have converted approximately 250 acres to overhead trellis systems. "We have seen increases in overall yield with this system when compared to conventional rows" says Peter, "with no decrease in quality."

Overhead trellis systems have the vines grow vertically seven feet high, then the canes are trained to lay over onto a wire framework that exists between the 12 foot row spacings. "The labor costs are a little higher, due to the amount of work to properly prune the vines to grow this way; plus the wires that support the canes must be moved as the season progresses," according to Peter. "Those blocks that are mechanically harvested see a considerable labor savings at the end of the year."

Water management is a little different under this system as well. The overhead canopy provides a considerable amount of shade, which reduces the direct evaporation of water from the soil surface. One block had a surface irrigation applied approximately 10 days earlier still had visible moisture (dampness) on the soil surface. Under conventional production practices, Peter stated that the same soil would appear completely dry about five days after irrigation. Shading provided by the canopy also suppresses weed growth.

Miroyan has this system under a variety of irrigation systems. Some blocks are still exclusively under flood irrigation. Some have drip irrigation few have subsurface drip. "We combine irrigation practices here with the subsurface drip. We flood irrigate in the spring to fill the soil profile, and then we use the subsurface drip to maintain the moisture content. We have found that a high frequency irrigation program works best, running the system daily for short

intervals keeps the moisture where we want it," says Peter. "Irrigation scheduling is done by looking at the vines as well as at soil moisture instruments, such as tensiometers."



*Peter Miroyan has found that trellis systems save water and reduce harvest costs.*

The nature of the canopy has raised concerns about humidity. "Humidity is much more of a factor in our overhead vineyards than in our conventional vineyards. As a result, we've got to be more judicious when we flood irrigate, especially after veraison. At that point, we feel that mildew is less of a problem, but the risk of the fruit breaking down due to high humidity trapped under our canopy is something we monitor. Subsurface drip has really helped us here."

Peter uses the mildew model designed by Stephen Vasquez and George Leavitt, vineyard farm advisors in Fresno and Madera counties. Their "Mildew Monitor" system has helped him avoid any major disease problems.

Peter is quick to note that not all problems have been worked out on this production system. "We are learning more each year, and have been having fewer surprises. We really like the direction this system is going. Whenever you change a growing system, you must also change your approach to growing that crop to match." ♠

### IRRIGATION SYSTEM AND PUMP EVALUATIONS

KRCD's On Farm Program is available to evaluate your irrigation and pumping systems at no cost to you. If you had any irrigation related problems during the course of the season and want to isolate the cause, give Eric a call at (559) 237-5567 extension 117. Pump tests typically take 30-60 minutes to complete; irrigation evaluations run approximately 3 hours for most systems. ♠

**Call TODAY (559) 237-5567 ext 117.  
It is a NO COST service to you.**

# Conservation Helping Save Water

A previous issue of Irrigation News contained a story about the latest United States Geologic Survey (USGS) report on water usage in the United States. Overall, water usage in the United States has remained nearly constant for the period of 1985 to 2000, with a variation in usage of around 3 percent. The overall implication of the report is that conservation measures, both on the farm and at home, is paying off.

Industrial use of water, specifically that used for power generation, accounted for 48 percent of all freshwater and saline-water withdrawals during the year 2000 and has shown little change since 1985. The majority of the water used in this industry is surface derived freshwater, and is used for cooling purposes. Much of this water is used once and then returned to the environment.

Irrigation remains the largest user of freshwater supplies. For this report, water usage classified as irrigation includes the following: pre-irrigation, frost protection, application of chemicals, dust control, field preparation, crop cooling, harvest operations, leaching of salts from the root zone, and conveyance losses. Irrigation of golf courses, parks, nurseries, and turf farms are also included. Historically, surface water is the primary source of irrigation water, but the percentage drawn from groundwater supplies as a percentage of total irrigation use has increased from 23 percent in 1950 to 42 percent in 2000.

In many ways, this trend is logical, as the use of pressurized systems (drip/micro, sprinklers) has increased in recent years. Such systems now account for more than 50 percent of the total irrigated acreage, and are more dependent upon an on-site/on-demand water supply, rather than the delivery schedules set by irrigation districts.

When looking at the percentages of water use for irrigation, it is important to note that the actual acreage

under irrigation increased from 25 million acres in 1950 to 61.9 million acres in the year 2000, a 248 percent increase in 50 years. Some of this may be land located in the Midwest, a region traditionally irrigated by rainfall. From 1995 to 2000, a 7 percent increase in acreage was reported, which resulted in only a 2 percent increase in water withdrawals over the same period.

According to the report, the U.S. population grew from 150.7 million in 1950 to 285.3 million in the year 2000, with total water withdrawals going from 180 billion gal/day to 408 billion gal/day over the same period. Irrigation's portion of these withdrawals started at 89 billion gal/day (49.4 percent) in 1950 and rose to 137 billion gal/day (33.6 percent) in the year 2000. The USGS calculates that the application rate per acre has gone down from 3.55 acre-feet in 1950 to 2.48 acre-feet in the year 2000, a 30 percent decrease. This has occurred while overall crop yields have increased during the same period. Improved management of irrigation water and improved crop varieties can be credited for this result.

The demands on available water supplies will continue to grow as the population grows and it is up to the various interests to use the resource efficiently. Improvements in irrigation scheduling, whether it is based on ET rates, soil moisture monitoring or plant stress measurements, will continue to have a positive effect on the amount of water utilized by agriculture. Water conservation measures in new construction as well as retrofits in home remodeling will have positive effect as well.

For a no cost evaluation of your pump or irrigation system, or for any irrigation or ag discharge waiver related questions, call Eric Athorp at (559) 237-5567, ext. 117 today. ♠

## AGRICULTURAL DISCHARGE WAIVER SIGNUPS CONTINUE

If you apply irrigation water to your agricultural property, you are subject to the regulations set forth by the Agricultural Discharge Waiver. If you have not already selected your method of compliance (Individual Compliance or Coalition Member) you need to make your decision soon. The Regional Board is preparing to conduct surveys of growers as a first step towards enforcement of the regulations. Coalition membership is a NO COST option to you, so call (559) 237-5567 and request an enrollment form today. You can also download the form directly from our website. Go to [www.krccd.org](http://www.krccd.org) and click on the Coalition Membership Form link. ♠

## IRRIGATION NEWS KRCDD

Reprint freely with credit to:  
*Irrigation News*, a bimonthly  
publication of the Kings  
River Conservation District

For more information contact  
Eric Athorp at  
(559) 237-5567 ext 117  
[www.krccd.org](http://www.krccd.org)

Kings River Conservation District  
4886 E. Jensen Avenue  
Fresno, CA 93725-1899

NON-PROFIT ORG.  
U.S. Postage  
PAID  
PERMIT NO. 1687  
FRESNO, CA

**RETURN SERVICE REQUESTED**