



The 'home vineyard' at Quady is about 10 acres (4 hectares), broken up into five irrigation blocks, with four distinct soil types. In 2003, Herb Quady turned to the Rain Bird Cyclik wireless control system with Rain Bird valves to accomplish precise results in both irrigation and vine management.

Quady Winery Madera, CA

Assistant Winemaker, Agronomist
Herb Quady

Irrigation Equipment Supplier
Western Ag and Turf,
Madera, CA



When asked about his passion for his vines, Herb Quady replied, "Wine is made in the vineyard."

Rain Bird® Cyclik™ Wireless Control System Excels at Quady Vineyard.

Herb Quady believes that winemaking and grape growing at Quady Vineyard is a true partnership. Herb and winemaker Michael Blaylock report that they've noticed an immediate improvement in quality from the juice samples, for which he credits the healthier vines. Michael and Herb agree that the quality comes from the many factors that tie into the irrigation control provided by Rain Bird's Cyclik controller and automatic valves:

- The right irrigation and vine health allow the fruit to 'sugar up' and gain maturity faster, both at the same time.
- Precise irrigation control promotes healthy root systems that help the vines fight off disease.
- Irrigation in frequent, small 'pulses' of 1 to 4 hours each disperses the water laterally in the soil, to spread out the roots and promote health.
- Managed deficit irrigation before veraison, then maintaining higher soil moisture later in the season, is the best way to obtain the sugar, color, flavor and phenolics that the winemaker is looking for.

continued



Michael Blaylock, a 20-year veteran at Quady reports, "Because of the weather this year, there was a high chance of mold, mildew and rot. We didn't have any in 2003, but we've seen our share of it in the past."

The spring of 2003 started out cool and wet, then the weather suddenly changed to a period of heat and humidity that is seldom seen in this area. Most of the farmers were fighting 'sour rot', but Quady has not had any. According to Quady, to avoid mold-related disease, "You first need to reduce vegetative growth, because too many leaves cut down airflow. Second, control berry size because large berries have the weakest skins and the tight bunches allow rot to develop. Third, avoid saturating the ground. Too much water chokes off the plants' roots."

Michael and Herb credit the irrigation management that is made possible with the Rain Bird valves and Cyclik control system for the absence of any mildew or bunch rot in their vineyard this year.

The biggest obstacle in the 'home vineyard' that surrounds the Quady Winery is that the soil is not uniform. With the help of local soils expert, Jim Yeager, Ph. D., the vineyard soil types were mapped to show the range from fine sand to loam soil. Herb says, "You must even out the lack of soil uniformity by applying different water amounts to the different soil types. It's also important to change the pattern of irrigation. I'll never run the sandy sections more than an hour, and the heavy soils always get less than four hours continuously." Herb has a series of soil moisture sensors and has spent

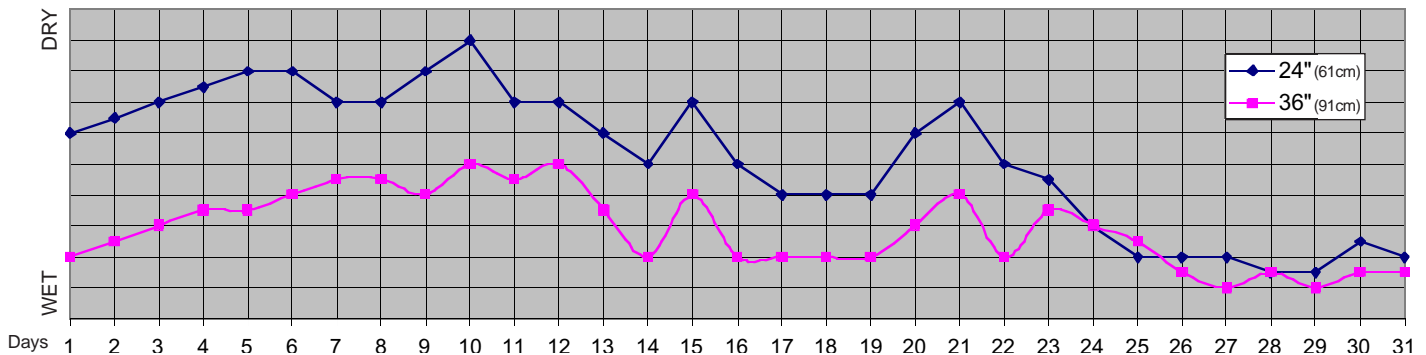
many hours with his shovel in the field this year. "I'm seeing roots in places I have not seen before, quite far from the vine row. The 'pulse' irrigation is doing a good job of spreading out the water in the soil, and the roots spread out right along with it."

To facilitate precision irrigation and pulsing, Quady installed a Rain Bird Cast Iron Valve with a Cyclik Control Module and Latching Solenoid at each of the five irrigation blocks. Cyclik is a battery-

powered irrigation control system that allows individual valve programming and control without AC power and does not need wires in the field. The control module is in a weatherproof enclosure located at the valve. The module is powered by a 9-volt battery, which operates a latching solenoid to open and close the valve.

"When this system was first built, nobody was concerned about adjusting the irrigation for the different soil types," says Herb. "We tried to manage the irrigation by hand and it was just impossible to devote the amount of time needed to do it right."

Soil Moisture Readings Block 1, July 2003



Observations: Very hot month, well over normal. Most vines in this block are doing very well. Leaves less green than usual. Ended deficit program July 7. Increased water application.

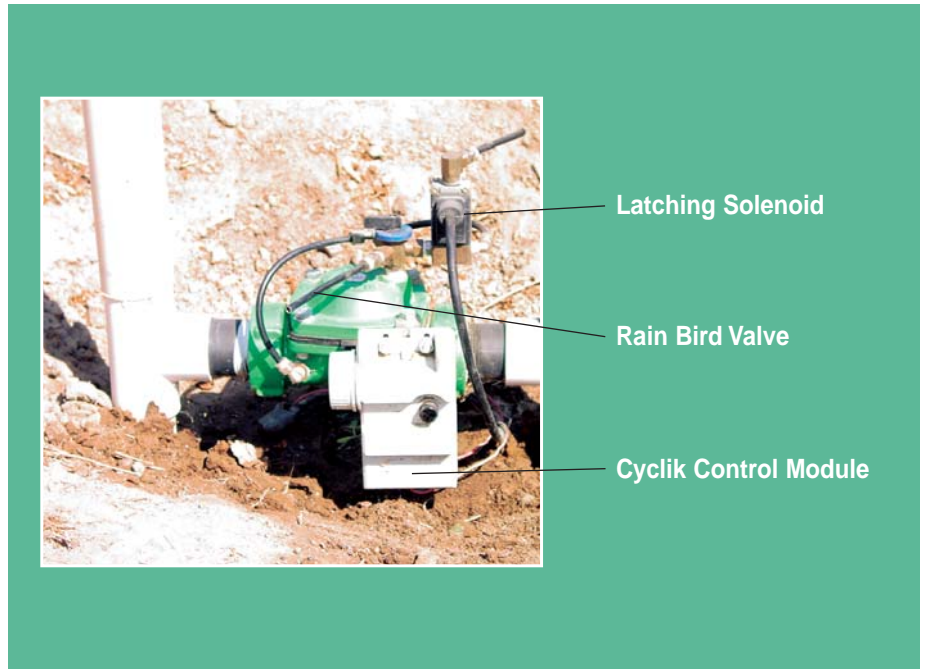


Cyclik control module and field transmitter connected via optical port.

The field transmitter is a hand-held unit with a keypad and is used by the irrigator to create the irrigation schedule. Once the schedule is keyed in, the transmitter is taken out to the field and the program is downloaded into the control module through an optical (infrared) link. After the program is in the control module, the valves open and close according to the schedule until a new program is created. Of the two programming options available—Cyclik Micro and Cyclik CI,—Quady is using the Micro option. They change the programs about every two weeks to match changes in weather patterns and vine growth strategy. “When this system was first built, nobody was concerned about adjusting the irrigation for the different soil types,” says Herb. “We tried to manage the irrigation by hand



Matt Angell of Western Ag and Turf in Madera, CA installed the Rain Bird Cyclik control and valve system and helped Herb Quady make it work to his vineyard's advantage.



Latching Solenoid

Rain Bird Valve

Cyclik Control Module

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“At the beginning of the season, Matt Angell and I had almost daily conversations about how to get the right run time and right zones on at the same time to match the pump. After a while, I had the information and experience I needed to make the on/off schedules for myself, but the support of Western Ag and Turf was really helpful to make this work,” says Herb.

According to Herb, “For years, the sandy sections had trouble with nematodes. We have tried many different types of chemical injections to get rid of them, but the chemicals only work for a short period of time in

the small area where they are injected. In my experience, a better way to handle nematodes is to put organic matter into the soil to get the plants as healthy as possible. Another strategy is

“We did a cost audit and figured the savings to be \$1,600 per year in pumping costs because we have cut irrigation time from 65 hours per week down to 36 hours per week.”

to irrigate in pulses and spread out the plant roots so that if nematodes are in a certain part of the soil, they will only damage some of the roots. Too much irrigation in sandy soils will concentrate all

of the vine roots in one area, so a nematode problem is devastating to the entire root system.”

By controlling the amount of water applied to each soil type, and the frequency of application, Herb can maintain the optimum health in his vines. The pulse irrigation in the sandy



Recent awards bestowed upon Quady Vineyard include a Gold Medal for this 2001 Vintage 'Essensia' at the 2003 Los Angeles County Fair, and a Gold Medal at the Pacific Rim International competition for the 2001 Vintage 'Electra'.

soils saves water and reduces pumping costs. "We did a cost audit and figured the savings to be \$1,600 per year in pumping costs because we have cut irrigation time from 65 hours per week down to 36 hours per week."

"There is a lot going on in this little ten acre piece of ground, but the same principles could apply to 500 acres (200 hectares)," says Herb Quady. "We're very pleased with the performance, operation and features of the Rain Bird Cyclik control system and valves. It really helps us achieve what we want when it comes to vine health and juice quality."

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