

Climate Genie comes to market



Grape Focus

By LEN RICHARDSON

GRAPE Networks Inc. has announced that production systems for monitoring microclimates for vineyards will be available in early 2007. The company also revealed the expansion of its current system at Beringer Vineyards, Napa Valley, and its work with Gallo Family Vineyards, Modesto.

The Climate Genie from Grape Networks consists of small battery-powered nodes, often referred to as motes. The motes can sense a few simple things, such as temperature, moisture, light or other physical qualities, but collectively they gather enormous sums of data about the quality and vitality of the grapes in a vineyard to improve the yield and quality of the crop.

The Climate Genie uses built-in radios to wirelessly transmit the information it collects between each mote for monitoring anywhere in the world via the Internet. The system forms a wireless mesh sensor network of thousands of individual motes/routers that are 10 to 300 meters apart. Motes are mobile so the vineyard manager can place them anywhere in the vineyard within range of the backbone motes.

"It is like getting 40 weather stations for the price of one," says Grape Networks President Peter Tsepeleff.

The right question

The kind of information vineyards may seek is not limited to temperature and moisture issues, but the always perplexing "why" questions, points out Tsepeleff. "Beringer had one plot in a field that produced their very best merlot, but they didn't know why. This was reason enough to collect data on this plot to find answers," he says.

The Climate Genie is comprised of sensors, routers, radios, servers, microwave antennas and, in the future, satellites, and as a system is referred to as the Sensor Super Highway. These networks are ad hoc, autonomous, self-healing and self-configuring. Individually, they can send minute bits of data over short distances, but as an aggregate they can cover unlimited distances.

With the Climate Genie, vineyards can be monitored on a much finer level than even today's precision agriculture techniques. Data from the sensor motes are summarized within the network and sent via Wi-Fi, cellular or satellite to the Internet to servers for viewing anywhere in the world with a Web browser.

Grape Networks software also can be integrated into the enterprise. When specified thresholds are exceeded, alerts can be sent to any compatible Web-enabled cellular phone.

100 acres or the world

One Climate Genie system can monitor the microclimate of a vineyard up to 100 acres. Multiple systems can monitor an unlimited number of acres worldwide.

What is the cost of a system? "We have learned that growers have a pain level of about \$150 per acre," says

Key Points

- Vineyard microclimate monitoring will be available in 2007.
- Climate Genie monitors up to 100 acres of a vineyard.
- Data from the sensor motes can be sent all over the world via the Internet.

Tsepeleff. "We try and keep cost within that range, though it can run more when dealing with hilly vineyards."

The basic system includes an easy-to-read and understand Web GUI interface, customer Web site and Microsoft SQL server, and the ability to monitor 100 acres with any Web browser or Web-compatible cellular phone.

Other applications

The Climated Genie also can broadcast data that can be applied to formulas for predicting mildew and other crop infestations.

The company's early work has been

limited to vineyards, "but we realize this technology has application in other crops, especially other specialty crops," Tsepeleff says. Future implementations may be able to act on local data, such as adjusting watering or fertilization.

For more information, call (925) 830-1698, e-mail info@grapenetworks.com, or go to Grape Networks' Web site at www.grapenetworks.com.

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