

## Viticulture and Enology Research Center

# Root aeration tried on table grapes

**A** university-industry research partnership led by scientists from Fresno State's Viticulture and Enology

Research Center (VERC) recently completed field trials for a new method of vineyard irrigation.

The trials consisted of air injection into a subsurface drip irrigation system in an attempt to increase oxygen levels, and, thus, aerobic activity, in the soil. Cooperating with VERC researchers on the project are a Delano area grape grower and a Bakersfield-based irrigation equipment manufacturer.

"The process offers a method of increasing vineyard productivity using relatively inexpensive technology," reported Roy Thornton, a VERC research scientist and one of the project leaders.

"Several studies have suggested the possible benefits of modifying root zone environments by injecting air," Thornton noted in explaining the work. "Conventional subsurface drip irrigation

## *Researchers inject air into subsurface drip lines to determine if added oxygen will boost vine growth*

Vineyards near Delano was set aside for treatments. One acre was irrigated by subsurface drip with aeration. High-efficiency, venturi-type injectors dispensed the air, which forms very small bubbles once injected into the drip lines. The other acre served as a control treatment, receiving above ground drip irrigation without aeration.

Soil samples were taken from random locations of each treatment during the growing season, Thornton said. The samples are being analyzed to determine the types of microorganisms present and

analyses. Microbial diversity of each soil sample will be determined by

extracting and analyzing DNA components of the microorganisms.

The air injectors for the research were provided by Mazzei Injector Corp. of Bakersfield.

Funding for this project was made available by the Governor's "Buy California Initiative," the California Department of Food and Agriculture and the U.S. Department of

Agriculture through the California State University Agricultural Research Initiative program. For additional information, contact Thornton at [rthornto@csufresno.edu](mailto:rthornto@csufresno.edu).



Vine root aeration study was conducted on Ruby Red Globe table grape vines.

***"The process offers a method of increasing vineyard productivity using relatively inexpensive technology."***

and flood irrigation both can produce an anaerobic root zone environment," he said. With the injection of air, "the microbial population will change from predominantly anaerobic types to aerobic types or organisms, resulting in increased soil nitrogen." Researchers believe the practice may improve crop production and fruit quality.

As part of the project, a two-acre portion of vineyard owned by VBZ

whether they vary among the different treatments.

In addition to soil sampling, researchers collected leaf samples to determine nitrogen status of the vines and berry samples to determine weight, percent soluble solids, titratable acidity and pH.

Thornton expects analyses of the different aspects of the work to continue through the summer, with results available in the fall. Fresno State associate biology professor Alice Wright and a team of students are conducting the soil

## Upcoming events

April 16 – Annual FFA Field Day Vine Judging at the Fresno State Vineyards. Call 559-278-2011 for details.

April 21 – 3rd Annual Vino Italiano wine tasting at the Fresno State Winery. Details online at [www.FresnoStateWinery.com](http://www.FresnoStateWinery.com).

May 19 – Viticulture and Enology Graduates' Dinner in Clovis, California. Grape and wine industry, alumni, faculty, staff and students invited. RSVP at 559-278-2089.

June 5 – A Celebration of Wine – annual wine tasting and fundraiser – at the Dennes Coombs' Riverbend Ranch in Madera, California. Call 559-244-5741 or visit [www.acelebrationofwine.com](http://www.acelebrationofwine.com).

June 22-24 – ASEV Annual Meeting in Seattle, Washington. For more info, visit [www.asev.org](http://www.asev.org) or email [society@asev.org](mailto:society@asev.org).