

THE WALL STREET JOURNAL

Subscribe | Log In

Subscribe NOW >>
A WEEK FOR 12 WEEKS
For a limited time.

TOP STORIES IN SAN FRANCISCO BAY AREA



Pilot Error Eyed in Crash

San Francisco Halted

- HOME
- WORLD
- U.S.
- BUSINESS
- TECH
- MARKETS
- MARKET DATA
- YOUR MONEY
- OPINION
- LIFE & CULTURE
- NEW YORK
- REAL ESTATE
- MANAGEMENT

- U.S. HOME
- SEIB & WESSEL
- POLITICS & POLICY
- HEALTH LAW
- ECONOMY

3 of 12



Train Singer Lays a Track to Franci...

SAN FRANCISCO BAY AREA

Blending Science With Wine
A Tech Executive Who Stomps His Own Grapes Refines the Discipline of Viticulture

Email Print Move 1 Comments

By **BEN WORTHEN**
Updated Oct. 14, 2010 12:01 a.m. ET



Jen Walsh, left, of the UC Davis Winery helps UC Davis graduate student Kristina Werner load grapes into a hopper to be crushed and de-stemmed. *Ariel Zambelich for The Wall Street Journal*

(Please see Corrections and Amplifications [below](#).)

DAVIS—At a 12,000-square-foot research winery here at University of California, Davis, Silicon Valley wizardry is meeting centuries-old tradition—all in order to figure out how to make better wine.

SUBSCRIBE NOW / ONLY \$1 A WEEK FOR 12 WEEKS

and winemaking operation. He donated 152 stainless-steel fermentation tanks that are equipped with high-tech equipment designed by Cypress's engineers. Among other things, the 55-gallon tanks monitor sugar levels, control temperature and transmit data wirelessly to the winery's computers.

Not only does this automate tasks that winemakers typically spend hours doing each day, but for the first time, it provides a level of control over the grapes' fermentation process that will allow UC Davis to create identical barrels of wine. By eliminating variables such as the alcohol level at different points during the fermentation process, UC Davis researchers hope to pinpoint the impact of different winemaking techniques.

"I wanted to showcase how technology could transform winemaking," says Mr. Rodgers. The 62-year-old CEO has spent years burnishing his winemaking expertise

Popular Now What's This?

ARTICLES

- 1 **Opinion: Romney: The Price of Failed Leadership**

- 2 **Success Outside the Dress Code**

- 3 **Malaysia Cedes Some Control in Search**


by bringing fresh scientific insight to the ancient process. But he insists on maintaining some age-old practices, such as crushing grapes for most of his vineyard's production with his own feet in the belief that it produces a better-tasting vintage.

The experiments that Mr. Rodgers's donation to UC Davis have made possible won't begin yielding results until next year. Winemakers caution that each vineyard and vintage is different, so while the Davis winery may be able to pinpoint, say, the optimal time to add yeast to a particular batch of wine, it isn't clear how broadly applicable the results will be. "A lot of information is great, but the great thing about wine is that there is no recipe," says John Conover, general manager for PlumpJack and Cade wineries in Napa.

Still, many winemakers say they welcome any scientific advances that can help them improve their products. Bill Murphy, chief executive of Clos LaChance Wines in San Martin and an adviser to the winemaking program at UC Davis, says he uses state-of-the-art commercial equipment to test things like how many vines to plant per acre. But there are too many things he can't control or reproduce, such as what time of day fermenting red wine juice is pumped back over the grape skins. As a result, he calls the research winery's moves potentially "revolutionary."

UC Davis, which runs a highly regarded program on viticulture and winemaking, first approached Mr. Rodgers in March seeking a \$1 million donation. Instead, the CEO—who sells about 1,000 cases a year of his own Pinot Noir and has designed his own hydraulic-powered fermenter—invited a pair of professors to visit his winery in Redwood City. In April, he showed them the fermenters he had designed and offered to develop a new generation for the university.

Roger Boulton, a professor of viticulture and enology, and Andrew Waterhouse, the department's chair, were immediately struck by the potential time savings presented by the hydraulic-aided presses. Mr. Waterhouse says he thought to himself, "This could work."

Mr. Rodgers then decided to go further.



[Enlarge Image](#) [Close](#)

Cypress Semiconductor CEO T.J. Rodgers hooked up fermentors this summer at the Davis facility. *Steve Yeater*

Having tried and failed three times on his own to construct a programmable version of a device called a brix meter, which measures the sugar level in fermenting wine, Mr. Rodgers turned to some Cypress engineers and asked them to build prototype brix sensor using the company's chips and other technology. He turned to another team to figure out how to relay the measurements wirelessly. Within a week, the teams had prototypes.

In May, Mr. Rodgers, who sometimes sketches out designs while working on a

floating styrofoam desk in a hot tub, drew schematics for the new brix sensors and tanks. Over the next few months, he periodically sent 20-plus page PDF files to the UC Davis professors detailing the progress, including reports on successful and failed tests. In mid-August, he delivered the first units to the research winery.

One day recently, about 40 of the fermenters were hooked up at the research winery, some of which were already filled with grape juice. Plastic tubes running up to the ceiling and through the building's walls vented out carbon dioxide and pulled in water to cool and heat the tanks.



4 Food Prices Surge as Drought Exacts a Toll



5 Putin Signs Treaty to Annex Crimea



VIDEO

1 Malaysia Air MH370: Possible Sabotage, Explained



2 U.S.'s Top Surveillance Plane Hunts for Flight 370



3 Being a Nonconformist Pays Off, Sometimes



4 Former FBI Agent on Suspicions MH370 Flew for Hours



5 Putin on Crimea: 'A Question of Life Importance'



Mr. Rodgers, who says he will have spent precisely \$1.003 million to develop the fermenters, plus additional time from Cypress engineers, is already hard at work on his next winemaking project: a spectrophotometer that uses light to measure the presence of different compounds in wine.

Currently, winemakers have to send samples of their wine to labs to run expensive tests to get these results. Mr. Rodgers is working with students to develop a spectrophotometer that can sit in wine, take real-time readings and transmit the results wirelessly.

If he succeeds, he already has the wine industry interested in the possibilities. Mr. Conover of PlumpJack wants to stick the devices inside bottles of its 2009 Cabernet, which it will bottle in June. The winery uses some screw caps and some corks on its bottles, and wants to see whether there are long-term differences in how the wines with the different tops age, he says.

"We respect tradition, but we believe in innovation as well," says Mr. Conover.

Correction & Amplication:

Jen Walsh of UC Davis Winery is pictured working with a Davis graduate student. An earlier version of this article spelled Ms. Walsh's name incorrectly. Also, the photo of Cypress Semiconductor CEO T.J. Rodgers is credited to Steve Yeater. An earlier version of this article incorrectly credited the photo to UC Regents.

Write to Ben Worthen at ben.worthen@wsj.com

 Email
  Print
 

 1 Comments
  Order Reprints
 



WSJ In-Depth



Senate Minority Leader Campaigns on Clout



Iraqi Officer Takes Dark Turn to al Qaeda



Loan Rebound Misses Black Businesses



Tales From Flight 370: Life's Small Moments Loom Large



Test Case for World's Central Bankers



Surge in Oil Shipments Sidetracks Other Industries

SPONSORED LINKS

[Best Culinary Schools](#)

[Big-Data Analytics](#)

[Estate Planning Tips](#)

[New Car Prices](#)

[10 Best Mutual Funds](#)

[Best Dividend Paying Stocks](#)

[High-Yield CDs](#)

[High Yield Savings Account](#)

[Best Hybrids](#)

[Dividend Income Funds](#)

Add a Comment

JOURNAL COMMUNITY

[View All Comments \(1\)](#)

[Community rules](#)

To add a comment please

[Log in](#)



[Create an Account](#)

Your real name is required for commenting.

Track replies to my comment

[CLEAR](#)

[POST](#)

WHAT DOES A DOLLAR GET YOU TODAY?

A ¼ gallon of gas... or stories that go the extra mile?

For a limited time

ONLY \$1 A WEEK FOR 12 WEEKS
SUBSCRIBE NOW»

WSJ SUBSCRIBER'S CONTENT PROVIDES:

- **Inform your decisions:** with award-winning news and in-depth analysis.
- **Access the world:** with reporting from 1900+ journalists across 45 countries.
- **Speak confidently:** with coverage of the global markets, technology, real estate and culture.

THE WALL ST JOURNAL



[Subscribe](#) / [Login](#)

[Back to Top](#)

Customer Service

- [Customer Center](#)
- [New! Live Help](#)
- [Contact Us](#)
- [WSJ Weekend](#)
- [Contact Directory](#)
- [Corrections](#)

Policy

- [Privacy Policy](#)
- [Cookie Policy](#)
- [Data Policy](#)
- [Copyright Policy](#)
- [Subscriber Agreement & Terms of Use](#)
- [Your Ad Choices](#)

Ads

- [Advertise](#)
- [Place a Classified Ad](#)
- [Sell Your Home](#)
- [Sell Your Business](#)
- [Commercial Real Estate Ads](#)
- [Recruitment & Career Ads](#)
- [Franchising](#)
- [Advertise Locally](#)

Tools & Features

- [Apps](#)
- [Emails & Alerts](#)
- [Graphics & Photos](#)
- [Columns](#)
- [Topics](#)
- [Guides](#)
- [Portfolio](#)
- [Old Portfolio](#)

More

- [Register for Free](#)
- [Reprints](#)
- [Content Partnerships](#)
- [Conferences](#)
- [SafeHouse](#)
- [Mobile Site](#)
- [News Archive](#)

[Jobs at WSJ](#)

Copyright ©2014 Dow Jones & Company, Inc. All Rights Reserved.