# THE CATCH-WIRE

A quarterly newsletter

Jordan College of Agricultural Sciences & Technology

Department of Viticulture & Enology

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# FRESN@STATE

Viticulture and Enology

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# Chair's Message

# As Fresno State Viticulture and Enology Goes, So Goes the California Grape and Wine Industry

I was recently reading remarks that James E. Canales gave on the occasion of the Fresno Regional Foundation's 45th anniversary luncheon given on October 26th, 2011. At the time, Mr. Canales was the President and CEO of the lames Irvine Foundation, a foundation with the mission to "expand opportunity for the people of California to participate in a vibrant, successful and inclusive society."

During his remarks, Canales spoke of the challenges facing the state of California in the midst of the Great Instead of highlighting the state's woes however, Canales spoke of the vitality and history of the state, its importance to the larger health of the country and finally to the collective power of individuals to create As Canales said, "Let's remember what change. California once did by investing in its future: we led the way in creating the best system of higher education in the world, we transformed our land into an agricultural powerhouse that feeds the world, and we tapped our pioneering spirit to create the place we know as Silicon Valley. That's what Californians can do." James Irvine would have been proud.

The James Irvine Foundation was named after its namesake, a California agricultural pioneer who established the Foundation in 1937 with a broad mandate to "benefit the people of California." The Irvine surname is a legacy name in this state. James Irvine's father was an immigrant from Ireland who came to the United States in 1845 and migrated to California during the gold rush. Present day Irvine, California is located on the former Rancho San Joaquin, which was purchased by Irvine in 1864. At its peak, one-third of Orange County was owned by the agricultural force Irvine Ranch. original 1,000-acre University of California, Irvine campus (named after the person, not the place), which was an expansion campus of the original University of California system and was a component of the 1960 California



Portrait of James Irvine (1827-1886). Photo by permission of the Katie Wheeler Library, Irvine, CA.

Master Plan for Higher Education, was sold to the University of California for \$1.

During his life, James Irvine II gave generously. During the 1930s, the Great Depression had brought considerable unrest to his native California. After glimpsing his own mortality in the death of a close friend in 1936, Mr. Irvine decided to establish a foundation that would promote the "general well-being of the citizens and residents of the state of California." Since then, the Foundation has met the objectives of its founder by providing more than \$1.3 billion in grants to over 3,500 nonprofit

On the Cover Industry partner and grape grower, Frank Saviez. Photo by Belen Gomez, student photographer

Join Our E-List

# Chair's Message Continued



Portrait of James Harvey Irvine, Sr. (1867-1947). Photo by permission of the Katie Wheeler Library, Irvine, CA.

organizations across the state. It is difficult to comprehend the impact that this individual has had on this great state and continues to have through the foundation that he started.

As you have all no doubt read, the California higher education system suffered greatly during the Great Recession. I believe this system, which is one of California's greatest achievements, is on a course that is not sustainable. According to the National Center for Public Policy and Higher Education, given the economic cuts in higher education that have occurred over the past 10 years, and the associated reduction in access to higher education, there is now the expectation that California will fail in providing a college-educated workforce to meet the knowledge-based economic needs of 2020 (Patrick M. Callan, California Higher Education, the Master Plan, and the Erosion of College Opportunity, February 2009). How we arrived in this state is no longer relevant: where we go from here, is.

As a 3<sup>rd</sup> generation Californian, I am proud of my state and its heritage. As a part of the California higher education system I feel fortunate that I can play a part in shaping my state by educating its future. In my time at the Department of Viticulture and Enology at Fresno State I have come to realize that our program is a cornerstone recipient of the spirit of James Irvine. There are so many individuals who have given to this program and I believe that they have done so because they too feel that the collective power of the individual can achieve greatness.

Our industry depends heavily on California's higher education system and I believe that the giving that we have received has instilled in our students the belief that we all have a responsibility to our future. With this ethos, I believe that the great state of California is in good hands.

James Kennedy, Chair

Department of Viticulture and Enology

Email: jakennedy@csufresno.edu
Web: http://fresnostate.edu/jcast/ve



# Our Viticulture & Enology Team

#### **Faculty and Instructors**

James Kennedy, Faculty Chair

Grape and wine phenolic chemistry, with an emphasis on tannins

William Edinger, Lecturer

Microbial wine spoilage, development of improved and automated detection and enumeration of wine microorganisms

Richard Gahagan, Lecturer

Regulatory issues

Sanliang Gu, Faculty

Ricchiuti Chair of Viticulture

Fruit quality improvement, plant nutrition, plant-water relations, cold hardiness, cultivar evaluation, trellis systems and canopy management

Kaan Kurtural, Faculty

Bronco Viticulture Research Chair Precision viticulture, whole grapevine physiology, mechanization of canopy management practices,

Hend Letaief, Faculty

vineyard efficiency

Wine chemistry, quality improvement research, microbial wine spoilage, wine production

**Susan Rodriguez,** Research Fellow & Lecturer Wine microbiology, wine sensory evaluation, grape rot quantification

**Kevin Smith,** Winery Marketing & Lecturer Winery business and marketing

Roy Thornton, Faculty

Wine microbiology, wine yeast genetics and physiology, manipulation of wine flavor, and quantifying microbial rot on wine grapes

Sonet Van Zyl, Faculty

Table and raisin grape production and marketing, industry focused research for California's table grape and raisin industries

Visit our web site for a listing of adjunct faculty.



www.facebook.com/FresnoStateViticulture and Enology

#### **Staff**

Geoffrey Dervishian, Viticulture Associate

Mechanical canopy management, crop load and irrigation stress on yield and fruit quality in the SJV

Britt Foster, Librarian, V. E. Petrucci Library

**Ryan Hessler,** Assistant Vineyard Manager Raisin, table, and wine grape production

Carrie Irby, Accounting Technician

**Jayne Ramirez,** Administrative Assistant to the Chair and Director, and Office Manager

**Matt Rule,** InterimWinemaker Winery operations, wine production

**Mark Salwasser,** Vineyard Manager Raisin, table, and wine grape production

**Aude Watrelot,** Post-Doctoral Research Scholar Grape and wine phenolic chemistry, with an emphasis on tannins

**Cynthia Wood,** Outreach and Event Coordinator

# Viticulture and Enology Emeriti

**Sayed Badr,** Professor Emeritus of Viticulture, and former chair, Plant Science Department

**Kenneth Fugelsang** (FERP), Professor Emeritus of Enology

**Barry Gump,** Professor Emeritus of Chemistry and former Adjunct Faculty of Enology

Carlos J. Muller, Professor Emeritus of Enology

Vincent E. Petrucci, Professor Emeritus of Viticulture, and former Director, Viticulture & Enology Research Center

**Robert L. Wample,** Professor & Chair Emeritus of Viticulture, and former Director, Viticulture & Enology Research Center



# Viticulture & Enology Industry Advisory Board

**Jim Coleman,** IAB Chair, E & J Gallo Winery

**John Crossland,** Vineyard Professional Services

**Jerry DiBuduo,** DiBuduo Land Management Company

**Nat DiBuduo,** Allied Grape Growers

**Cathy Ference**, Treasury Wine Estates

Fred Franzia, Bronco Wine Company

**Glen Goto,** Raisin Bargaining Association

**Keith Horn,** Constellation Brands

**Hal Huffsmith**, Sutter Home Vineyards

Wade Kirschenman, Kirschenman Enterprises

**Dianne Nury,** Vie-Del Winery

**Rick Stark,** Sun-Maid Raisin Growers

**Brian Vos,** The Wine Group

Viticulture & Enology Newsletter Editorial Staff

**Britt Foster** 

James Kennedy

Cynthia Wood

Contact: 559.278.2089

Read The Catch Wire online:

http://fresnostate.edu/jcast/ve

# **ASSOCIATE DOLLARS AT WORK**

Greetings from the faculty, staff, and students in the Department of Viticulture and Enology!

Each fall it has become an annual tradition for me to reach out to our friends and supporters to share some of our highlights and encourage everyone to contribute to our **Viticulture and Enology Associates Campaign**. This Campaign is a critical component of our department's financial well-being and was created so that we can maintain our position as a global leader in grape and wine education and research. Simply put, the Associates Campaign helps us fill the gap that exists between the funding that the state of California is able to provide the Department of Viticulture and Enology and the quality of instruction and research that our industry has grown to expect.

Our student, faculty and staff numbers have grown significantly since I started in 2010 and Associates Campaign funds have enabled us to maintain our facilities and enhance instruction to our students during this time. For the faculty and staff, I am happy to report that our level of commitment to having a positive impact on our students is stronger than ever. A few points of success from this past year:

- In the past four years, our program has grown by over 40% to over 170 students.
- For the first time in our history, the number of declared viticulture students has exceeded 50.
- 100% of our students were successfully employed upon graduation.
- Our graduate program continues to grow with new research findings presented and published by our students.
- The establishment of a raisin grape block will significantly increase the impact of our viticulture program.
- Our chemistry research capabilities expanded significantly with the renovation of one of our laboratories.
- This past year our Viticulture Club sold out their annual Fall Harvest BBQ, with 450 tickets sold (this year's event on November 14<sup>th</sup> at Wolf Lakes Park in Sanger was also a success).

# WHY GIVE?

"Simply put, the Associates Campaign helps us fill the gap that exists between the funding that the state of California is able to provide the Department of Viticulture and Enology and the quality of instruction and research that our industry has grown to expect."

Our Viticulture Club and Enology Society have also contributed greatly to the future of our program by generating much needed financial support from club activities. As an educator, I have been particularly touched by the fact that our students recognize the important role they play to ensure the future health of their program!

These success stories would simply not be possible without the generous contributions to our Associates Campaign. The State of California cannot afford to support the level of instruction and commitment that we give to our students. Below are some of the activities that were made possible through your generous donations last year:

- We successfully conducted a resume writing workshop and a career and internship fair.
- We updated our microbiology and wine chemistry laboratories this past year. This included the purchase of much needed microscopes, essential glassware, and maintaining our laboratory water system.
- At least ten field trips to our industry partners took place.
- Student awards were purchased and presented at our annual graduation dinner.
- We provided a \$500 scholarship for winning FFA vine-pruning contestant (now a Fresno State Viticulture student).
- Our department newsletter, The Catch Wire, has become our vehicle for disseminating our successes to you.

There are so many additional activities and success stories to report, far too many to mention. If you are not receiving our online newsletter *The Catch Wire*, I encourage you to view the latest issue through the department's website (www.fresnostate.edu/jcast/ve).

As I look into the year ahead I continue to see tremendous opportunity to increase the impact of what we do. We are only limited by the support that we receive from individuals like you. To contribute to the Viticulture and Enology Associates Campaign in support of our program, please complete a pledge form and return it in to the Department of Viticulture and Enology along with your contribution made payable to the Fresno State Foundation. This information is also available online (www.fresnostate.edu/jcast/ve/development/campaigns.html) Please remember that your contribution is tax deductible to the extent provided by federal, state and local law.

On behalf of all of us in the Department of Viticulture and Enology at Fresno State, we are grateful for your continued support of our teaching and research programs.

Sincerely,

lames Kennedy, Chair

ames a. Kennely

Department of Viticulture and Enology



# **RECOGNIZING THE GENEROSITY OF MANY CONTRIBUTORS**

#### 2013-14 ASSOCIATES CAMPAIGN DONORS

Anonymous Donors (16)
Alex R. Cose
Brett Escalera—Consilience Wines
Fresno Valves & Castings, Inc.
Huter Farms—Elmer & Lilliana Huter
Knights of the Vine
Knights of the Vine: Chancellery Chapter
Monterey Pacific, Inc.
Raisin Bargaining Association
Ramos Torres Winery
Sarabian Farms
Frank & Alice Saviez Farming
Vintage Nurseries
The Wine Group

#### **ASSISTANTSHIPS**

Bayer Agriculture Division Graduate Student Assistantship
DiBuduo Family Assistantship
Fresno State Viticulture Club
Garabedian Family Viticulture Student Assistantship
Gerner Brothers Lone Star Farm Bureau
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Horace O. Lanza Viticulture Assistantship
H.P. and Edna Metzler Viticulture Assistantship
San Joaquin Valley Winemakers Research Assistantship
Women on Wine, Riverside

#### **SCHOLARSHIPS**

American Vineyard Magazine Viticulture Scholarship D. Glen Davies National Juice Product Assoc. Rodney A. Foppiano Memorial Scholarship John, Rose & Charles Garabedian Scholarship K.C. Fugelsang/C. J. Muller Enology Scholarship Endowment Horace O. Lanza Enology Grant Horace O.Lanza Viticulture Grant Harry & Nevart Moordigian Endowed Scholarship Fund Evins R. Naman Grant **Orange County Wine Society** Marc Radin Agriculture Scholarship Ron Radiocich Memorial Scholarship Raisin Bargaining Association Scholarship Robert Sinclair Memorial Scholarship Raisin Wives Scholarship Dr. Robert Wample Endowment Scholarship Wulf Family Scholarship

# **ENDOWMENTS—OPERATING FUNDS**

Bronco Wine Company Viticulture Chair Ricchiuti Chair of Viticulture Research Endowment Viticulture & Enology Endowment Viticulture & Enology Alumni—V. E. Petrucci Library Endowment Fund

This list does not include research or project-based grants.

# **S**potlight

# Frank Saviez

Industry relationships are a cornerstone of Fresno State's viticulture and enology program, something that we do not take for granted. Especially during this time of year, we reflect upon the generosity of so many individuals and companies who have made a significant impact on our program since its inception. One individual who stands out in particular is Frank Saviez.

We recently caught up with Frank as he was about to embark on a hunting trip to Montana with some of his closest friends. We spoke to him about the many ways he has been involved with Fresno State's viticulture and enology program and also learned more about his life, career, and the positive impact he continues to make on the grape and wine industry.

Frank's relationship with Fresno State's grape and wine program began nearly thirty years ago when he accepted the call from former director Vincent E. Petrucci to serve on the Viticulture and Enology Advisory Board (1985). For many years he and several other industry leaders helped guide the grape and wine research program under the tenure of Petrucci and Keith Striegler, former directors of the Viticulture and Enology Research Center.

Soon Frank's involvement with the program deepened and in about 1997 he partnered with Fresno State on a research project in his vineyards. "The project studied Syrah, a grape variety that was experiencing popularity in Australia and was thought to have promise in the San



Robert Wample, former chair of the Department of Viticulture and Enology, acknowledges industry partners and growers Frank Saviez and John Duarte at a Fresno State media event in 2001.



Frank Saviez and Jim Kennedy with students and interim winemaker Matt Rule working with wine from Saviez's fruit in the Fresno State Winery. Photo by Belen Gomez, student photographer.

Joaquin Valley," he said. The result of this initial study resulted in a long and successful partnership with the Fresno State Winery and led to many award-winning wines made with fruit from Saviez's vineyards. The first gold medal from Saviez's Syrah came in 1999 at a time when the Fresno State Winery had also received a double gold at the California State Fair for its 1998 Shiraz, from grapes grown the Fresno State Vineyards.

"Early on, Frank played a role in proving that quality wines can be produced with grapes grown in the San Joaquin Valley," said Jim Kennedy, chair of the Department of Viticulture and Enology. This success "put the Fresno State Winery on the map."

"During my ten years as winemaker at the Fresno State Winery, I worked closely with Frank Saviez," said John Giannini, former Fresno State winemaker (2000-2014). "Frank is one of the most conscientious, hard-working persons I have had the pleasure to work with. He is a great supporter of the viticulture and enology program at Fresno State."

"When I met Frank for the first time, we drove through his vineyard and he said I was welcome to take Syrah grapes from the block of my choosing. I didn't realize it at the time, but he was planning to donate his grapes to the program....and he has been donating his grapes every year since," said Giannini.

Giannini believes Saviez produces some of the best Syrah grapes found anywhere. "His fruit produces wines with amazing depth and concentration. When the naysayers state that quality wine cannot be made from Central Valley grapes, I pour them a glass of Saviez Syrah and wait for the surprised look on their faces," Giannini said with a smile.

"Frank Saviez has proven that quality wines can be produced from Central Valley grapes. Through our shared goal of producing ultra-premium wine, I am proud to call Frank my friend."

John Giannini

Saviez was raised in Calistoga in the Napa Valley where his two grandfathers had wineries until the time of prohibition. He attended UC Davis where he lettered in football, baseball, and track and also took classes from viticulture and enology legends Amerine, Winkler, and Olmo. After serving three and one-half years in the U.S. military, Saviez began his career in the ag chemical industry in the state of Washington. In 1956 he accepted a position with Wilbur Ellis in Fresno, CA where he had a long and successful career until his retirement in 1995. During his time at Wilbur Ellis, Saviez said he was selected to participate in a special program in advanced management at Harvard, similar to an MBA program. Saviez met his wife Alice in 1965 and they married in 1967. In 1969, they made their home along the San Joaquin River of Fresno and raised three children—Mike, Mark, and Nicole. In retirement, he continues to manage his vineyards located on the west side of Fresno including Pinot Grigio, Pinot Noir, Tempranillo, Malbec, Primitivo, some experimental varieties, and his Syrah acreage on the river.

"Frank is the epitome of giving," said Kennedy. His dedication to Fresno State's viticulture and enology program is reflected in so many ways—his years of service on our board, his willingness to conduct research in his vineyards, his generous donation of grapes to the winery, his financial support to our program, and his genuine interest in our students. Kennedy summed it up by saying, "Frank is a salt-of-the-earth kind of gentleman who we are proud to acknowledge as our friend and industry partner. He has played a role in our success for many decades. The next time you have a glass of Fresno State's Saviez Syrah, be sure to say cheers to this man who has done so much for our program!"



# **Update**

# The Many Ways of Giving

University-industry partnerships are a key component of our success. Look around our facilities and you will see the positive impact that individuals, companies, and organizations have made and continue to make. These partnerships take on many forms and in the end, they help us grow, improve, and strengthen our academic and research facilities and programs and help our students succeed. Time,



Before the viticulture building was built. Image from the V. E. Petrucci Library Garabedian Digital Collection. Creative Commons BY-NC-SA 3.0 advocacy, commitment, service, and financial giving are but a few examples of how alumni, colleagues, and industry partners remain engaged.

"We are grateful for the strong professional ties and the trust that our industry partners have had in us for many decades," said Jim Kennedy, chair of the Department of

Viticulture and Enology. "These partnerships are built around a common goal and benefit for both the university and industry—to provide quality education and the best training ground for each generation of students who will enter the grape and wine industry."

One historical example of how the grape and wine industry responded to a need for facilities is the construction of the original viticulture building in the 1970s on campus. After years of program growth and success, this building was renovated and expanded in the 1990s—once again with support entirely from private industry funds. Because of the collective commitment by many individuals and organiza-



Construction of the World Cooperage Barrel House at the Fresno State Winery made possible by nearly a quarter million dollar gift from the Boswell Foundation and World Cooperage (2002)

tions, decades of students have now been able to enhance their academic training by working in the research laboratories within this building. In 2000, it also became "home" to our Department of Viticulture and Enology. Today it continues to provide office and lab space for our faculty researchers. "As reported in previous issues of *The Catch Wire*, the department recently completed two renovation projects within this building —the upgrade of one of our research labs and the expansion and remodeling of the V. E. Petrucci Library," said Kennedy.

"Renovations and upgrades are an important aspect of every program's ability to stay current and plan for the future. Unfortunately, due to limited state funding, we are increasingly faced with relying on industry support more than ever to help us meet these goals."



# "... I cannot do everything, but I can do something..."

Many of the tools that are used in our teaching and research programs are also made possible through some form of giving: donating time, materials, equipment, money, and/or services to our classrooms, research labs, library, vineyards, or winery; attending and/or providing support to departmental events and activities; providing learning opportunities for our students through industry guest lectures and field trips; serving on our Industry Advisory Board or attending meetings where industry advice and direction is critical; supporting our student clubs and activities; participating in our viticulture and enology alumni organization; making a financial commitment to any one of our campaigns or project needs; sharing Facebook posts with your friends and colleagues; or simply being an advocate for Fresno State's viticulture and enology programs and activities.

The sum of all of these efforts make a huge difference to our department's ability to fulfill our mission. As Edward Everett Hale once said, "I am only one, but I am one. I cannot do everything, but I can do something. And I will not let what I cannot do interfere with what I can do."

On behalf of the department, Kennedy said, "We are grateful to everyone in the past, present, and future who has done or is doing what they can for our students and program. Together we can make a difference."



# Viticulture & Enology Alumni Matching Challenge—Help Us Exceed Our Goal

There has been a lot of chatter, but have *you* given to the **2014 Viticulture and Enology Alumni Challenge?** 

2014 is coming to an end and with it the conclusion of the Viticulture and Enology Alumni Association (VEAA) matching gift challenge. In January, former department chair and VEAA president Bob Wample and his wife Pam challenged all viticulture and enology alumni and friends to give to the VEAA in support of the V. E. Petrucci Library. The Wamples will match every dollar raised in 2014, up to \$40,000.

So far the VEAA has received 27,330 and hopes to receive \$12,670 by the December 31 deadline. If the challenge is successful, the VEAA will raise a total of \$80,000 which will be used to support the excellent resources available in the V. E. Petrucci Library in the Department of Viticulture and Enology.

"For decades the VEAA has provided funding to the library so students, faculty, and the grape and wine industry can have a valuable and free resource available to them. We are proud of this accomplishment and are very pleased with the progress that has been made in the library and its services over the past few years," said Jon Holmquist, treasurer of the VEAA. "We encourage everyone to give what they can by December 31 to help us exceed our goal. Every dollar counts!"

Donations can be made online by visiting veaafresno.org or by mailing a check payable to the VEAA to 2360 E. Barstow Avenue MS VR89, Fresno, CA 93740-8003. Questions? Feel free to call 559 278-5388. Please give today!



# V. E. Petrucci Library

# Student Record of Giving is Impressive

Stepping into our bustling, busy, and spacious library now, it's hard to imagine the V.E. Petrucci Library down the hall in the original two-room space, where 15- 20 students would jam around one table to study for their entomology midterm. Perhaps even harder to imagine is the library only open for five hours a day-- and in the months before that, the library closed and inaccessible to students. Subscriptions to journals and magazines continued, but piled up uncatalogued on the counter, and books were locked away for almost a year before the library reopened in February 2012. Without staff to manage the collection, the library had temporarily become nothing more than storage space.

What reopened the doors of the library? What keeps the doors of the library open? The generosity of the Viticulture and Enology Alumni Association funds on average 98% of the library's annual budget, though direct donations and through the establishment of the V.E. Petrucci Library Fund Endowment. The remaining 2% of the budget, however, is a critical component of our funds and allows the Petrucci Library to be responsive and innovative to our patrons' needs. The most interesting part of the 2% funds? The largest single donor to this portion of our income is students.

In March of 2012, I was approached by Joseph Gellar, a graduate student and then the vice president of the Viticulture Club, to see if I was interested in working with the Vit Club to host a 5K in the Fresno State Vineyards, with the proceeds to benefit the library. The library was only open until 2p, and the Vit Club hoped that with additional funding, the library could open full-time. That year, the club donated \$500 to the library. In April 2014, the Vit Club hosted the third annual Papa Petrucci 5k Vineyard Run/Walk/ Stroll, and has contributed \$4,500 dollars to the library from the event, with an additional \$2,000 match from Dr. Robert Wample



and Pam Wample in 2014. The Enology Society has also donated \$2,000 this year with a second match, bringing total student contribution to \$10,500. With these extraordinary gifts in 2014, student contributions are equal to 7% of the library's total operating expenses for three years since the library's reopening. The generosity of these gifts are astonishing, particularly when considering these contributions are given beyond budgets already stretched by tuition and fees, and constitute gifts of time in addition to funds.

Students contribute to the library in many ways. Two to three students serve on the Library Committee, the library's governing board, giving advice and guidance to the librarian on how the library can best serve student needs. Students also serve as advocates for the library, promoting the library with industry and through their internships and colleagues. Why do students value the library? Derick Webb, President of the Vit Club says,



Students use the new group study space in the V. E. Petrucci Library in the Department of Viticulture and Enology.

"The library is important to the students from the matter that we have a quiet area in our department to study. We all enjoy the great selection of books and journals for us to reference. We enjoy being able to support the library in that it is a vital part of education for us and a fixture of students of the department."

Witnessing students bring passion and energy to the early stages of their career is one of the joys of being an academic librarian, particularly in a program like Viticulture and Enology. The leadership demonstrated by our students is outstanding, and this commitment to their own academic success speaks volumes about the quality of student we attract and nurture at Fresno State. "I am so proud to work with these students," says Jim Kennedy, chair of the Department of Viticulture and Enology. "These students identify gaps and needs around the program— changes that will benefit them as students— and then just do what needs to be done to make it happen. I'm so excited to see what these talented people will do for our industry."

# SAVE THE DATE Papa Petrucci 5K April 19, 2015 Find the Viticulture Club on Facebook and register for the 5K

# Viticulture Teaching, Research, and Outreach Programs Strengthened by Equipment Donation

A generous donation by Midwest Grower Supply Manufacturing (www.mwgsupply.com) based in Stanberry, Missouri is going to further enhance the viticulture instruction, research, and outreach at Fresno State. The Department of Viticulture and Enology recently received a donation of a suite of vineyard mechanization equipment (Figure I). The donated equipment includes a VMech 2220 tool carrier, a tow-behind unit attached to a vineyard tractor that serves as a platform to attach tools for mechanized operations. The tool attachments include a California Sprawl trellis pruner, a shoot thinner and a cordon brush. The suite of implements is going to be utilized in the newly planted 20-acre block of French Columbard vineyard at the University Agricultural Labs. The Department used this type of equipment for vineyard mechanization field trials in commercial vineyards in the San Joaquin Valley. These field trials demonstrated that, when compared with hand-labor operations, mechanical box-pruning and shoot thinning could save money while maintaining vine balance and achieving similar or better yields and quality with varieties such as Syrah, Cabernet Sauvignon, Merlot, Pinot Gris and Zinfandel grown in the San Joaquin Valley.

The Department of Viticulture and Enology is the only comprehensive educational institution in the country that offers a Mechanical Vineyard Management (VIT 160) class. This donation will enable our students to learn how to operate mechanical pruners, shoot thinners, and cordon brushes, skills which are becoming essential for our industry partners. The donated equipment will also be used in research projects that are underway in the San Joaquin Valley of California. Furthermore, the department is planning to hold extension/outreach meetings to extend information to growers and industry partners in Spring/Summer 2015 using the equipment.



# **Experiential Learning Through Class Field Trips**

Keeping with the Department of Viticulture and Enology's mission of hands-on learning, students and faculty members Kaan Kurtural and Hend Letaief recently participated in two field trips to LangeTwins Vineyard and Winery (www.langetwins.com) in the Lodi grape growing region, and to E & J Gallo Winery's plant in Livingston (www.gallo.com).



Kelly Brakel meets with Viticulture 101 and Enology 105 students at LangeTwins vineyard in the Lodi region



David Akiyoshi gives Viticulture 101 and Enology 105 students a tour of the LangeTwins winery in Acampo

The field trip to LangeTwins was organized and hosted by viticulture alumni Kelly Brakel, director of viticulture operations and the Lange twins, Randall and Brad. During their visit, students were able to participate in learning how new vineyards are developed, planted, and managed using traditional and mechanical methods under limited irrigation supply and drought conditions.

Students also were able to meet and learn from LangeTwins head winemaker David Akiyoshi about processes involved in designing a winery from A to Z with the capacity to expand in the future. "During our visit, we were fortunate to be able to compare different vintages of Zinfandel (a cultivar famously grown in Lodi, CA) and Chardonnay and discuss Aki-

yoski's decision-making process used for blending, bottling and releasing wines for distribution," said Kurtural.

A total of 37 students participated in these field trips and all agreed that the exposure to different regions and the opportunity to meet with industry leaders during field trips is a valuable component of their academic training at Fresno State.

The department is grateful to these and other industry partners who give their time and resources to enhance learning outside of the classroom.



After a tour of the winery, students pose with Tom Pugh and members of the Gallo team in Livingston during lunch

# WHY WE GIVE

"I think the recent field trip was more rewarding for me than for the students! On behalf of Lange Twins and their staff, I want to commend Fresno State's viticulture and enology department for the students and professors who continue to show the family and academic excellence that I remember from my days as a Bulldog."

Kelly Brakel, LangeTwins Winery & Vineyard



"Gallo is pleased to host Fresno State students during field trips to our facilities. It's all about making them aware of career opportunities at Gallo and showing them what we are all about! Being a family owned business, it's all about personal relationships."

Tom Pugh, Director of Enology, E & J Gallo Winery

# Less Water, More Color: Table Grape Study Investigates Relationship Between Irrigation, Plant Growth Regulators and Color Development

# Sonet Van Zyl

Assistant Professor of Viticulture

The warm and semi-arid San Joaquin Valley (SJV) of California leads the United States in table grape production. However, the warm climate that lends itself to higher yield can inhibit color formation on red and black table grape varieties. Researchers have long known that warm climate causes lower anthocyanin content in SJV grapes; however, the mechanism is poorly understood. There has not been any significant



Figure 1. Autumn Royal table grapes at the start of veraison.

translation of this information to practices resulting in increases in color or decreases in irrigation application amounts.

Autumn Royal is a black, seedless, late-season table grape variety developed by David Ramming. This variety is harvested in mid-September through mid-November depending on weather conditions and the season (Dokoozlian et. al., 2000). Autumn Royal has a high retail demand with its firm berry texture and good flavor. One of the main limiting factors for Autumn Royal table grape production is proper color development. It has been reported that color deficiency and non-uniformity may result in some of the crop left unpicked. Color development problems have also been reported where vine vigor is not closely controlled and where excessive

								N	IORTH							
BLOCK/REP	Rep 1				Rep 2				Rep 3				Rep 4			
ROW	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38
PGR	P1	P2	P3	P4	P2	P4	P3	P1	P3	P2	P4	P1	P4	Р3	P1	P2
IRRIGATION	IR 1	IR 1	IR 3	SKIP	IR 1	IR 2	IR 2	IR 1	IR 2	IR 2	SKIP	IR 3	IR 1	IR 2	SKIP	SKIP
	IR 2	IR 2	IR 1	IR 2	IR 3	IR 1	IR 3	IR 3	IR 1	IR 1	IR 3	IR 1	IR 3	IR 1	IR 1	IR 3
	IR 3	IR 3	SKIP	IR 1	SKIP	IR 3	IR 1	IR 2	SKIP	SKIP	IR 2	IR 2	IR 2	IR 3	IR 3	IR 1
	SKIP	SKIP	IR 2	IR 3	IR 2	SKIP	SKIP	SKIP	IR 3	IR 3	IR 1	SKIP	SKIP	SKIP	IR 2	IR 2
PGR applic	ations						ı				4			*		
P1	Control			IR 1	Control							CH		1/4		
P2	Ethrel			IR 2	RDIEarly				1			D	100			
Р3	GA			IR 3	RDILate				<b>1</b>							
P4	Ethr	Ethrel+GA SKIF		SKIP	SI	(IP			4		The second					

crop load is permitted. Furthermore, the use of certain plant growth regulators like gibberellic acid

Figure 2. Autumn Royal table grapes at harvest.

(GA) and forchlorfenuron (CPPU) to increase berry size can delay berry maturity and color development. Ethephon applications are effective on certain red and black varieties to enhance color development. However, the industry has reported that ethephon showed inconsistent results regarding color enhancement and can lead to soft berries.

The red pigments in colored grapes are anthocyanins. Many of the enzymes involved with color development have been well characterized; for instance, anthocyanins only begin to accumulate at the onset of veraison. There are many internal and external influences on color development including light, temperature, nutrient status, water and biotic pressures. The effect of light has been well described and recently, temperature has shown to decrease the expression of many flavonoid and anthocyanin biosynthetic genes. Researchers discovered that high environmental temperatures degraded the stable isotope labeled anthocyanins in grapes cultured in vitro, demonstrating a specific mechanism that breaks down anthocyanins at high temperatures. In grape berries at veraison, anthocyanin turnover rates were less than 10% per day in 15°C and 25° C conditions but up to 50% per day in 35°C conditions.

This data represents berries cultured in petri dishes while turnover rates on the vine have yet to be determined.

There seems to be agreement that phenology\_based regulated deficit irrigation (RDI): I) reduces vegetative growth, 2) enhances ripening by increasing cluster light exposure and berry temperature, and 3) improves fruit quality through an increase of skin/pulp ratio and increased phenolic and aroma precursor compounds (Kurtural et. al., 2013). There is increasing evidence that water stress uniquely initiates not only whole vine water responses via hormonal and stomatal control of transpiration and photosynthesis, but specific biochemical events that influence synthesis of anthocyanins and flavor precursors in maturing fruit (Kennedy, J.A., 2008).

A common goal of implementing RDI is to maintain moderately severe water stress after fruit set and arrest shoot growth to meet fruit quality objectives. Little is known on the impact of differential water deficits on the growth, yield, and capacity of vines in subsequent seasons for table grapes, nor do we have information on how berry firmness is affected under prolonged water stress.

There is fundamental knowledge on how PGRs and phenology based RDI affect grapevine physiology in recent literature. However, this fundamental knowledge has not yet been translated into practical information that could be employed by viticulturists. In other words, there is lack of knowledge on the effects of PGRs and phenology-based RDI application on berry color at the farm gate. The focus of this work is to investigate the interactive effects of PGRs and irrigation on canopy architecture and microclimate, yield components, production efficiency, and resultant anthocyanin composition of Autumn Royal grapevine in the SJV of California.

In a new project funded by the Agricultural Research Institute (ARI) and Grapery (www.grapery.biz), researchers are investigating the interactive effects of plant growth regulators and regulated deficit irrigation on canopy architecture and microclimate development, components of yield and fruit production, the development of anthocyanins at key ripening stages, berry firmness, and post-harvest quality. This project will provide growers with additional information to assist them in improving grape color and pack-out rates, while reducing irrigation amounts.

## References

Dokoozlian N., Peacock W., Luvisi D. & Vasquez S., (2000). Cultural practices for Autumn Royal table grapes. University of California Cooperative Extension, Pub. TB17-00

# **INSIDE THE STORY**

This table grape study on the relationship between irrigation, growth regulators and color development is being funded in part by Jack Pandol, Jr., and Grapery. When Jack Pandol founded Grapery in 1996, he followed a family tradition of grape growing that spanned three

generations. He had one goal: to produce the best tasting table grapes in the industry. By pioneering, adopting, and refining various farming practices, Pandol passionately led his team through a series



of innovative breakthroughs that ultimately resulted in the delivery of outstanding, mouthwatering, all-natural grapes with an amazing flavor for consumers around the world.

Drs. Jim Kennedy, Kaan Kurtural, and Sonet Van Zyl have recently teamed up with Pandol to study how growers can improve grape color and pack-out rates, while reducing irrigation.

"Research and innovation have always played predominate roles in Grapery's ability to consistently deliver mouth-watering grapes to our customers. I am very grateful to be able to work with Fresno State on this project. The knowledge we gain will be vital in continuing to deliver great products," said Pandol.

The Pandol family's influence on the table grape industry and their support of Fresno State's viticulture and enology program goes back many decades. Pandol is a former member of the Viticulture and Enology Industry Advisory Board where he provided guidance to the university's grape and wine program.

"We are fortunate to be working with someone who represents years of table grape experience and are grateful for the support he is providing to our program. It enables us to address real issues and provide solutions that will benefit the table grape industry," said Van Zyl.

Kennedy J.A., (2008). Grape and Wine Phenolics: Observations and Recent Findings. *Ciencia* e *Investigación Agraria* 35:107-120.

Kurtural S. K., Wessner L. F., Dervishian, G., (2013). Vegetative Compensation Response of a Procumbent Grapevine (*Vitis vinifera* cv. Syrah) Cultivar under Mechanical Canopy Management. *Hortscience* 48: 576-583

# Too Much Rot, or Not?

# Discrimination Testing of Zinfandel and Chardonnay Wines Made with Different Levels of Grape Rot

The current limit for rot in wine grapes in California, applied by the California Winegrape Inspection Advisory Board (CWIAB) is 2% rotten grapes by weight. The estimation of percent rot is done by visual inspection at winery test stands of grape samples from gondolas on a berry weight basis. Our laboratory has been involved since 2009 in the development of a method to quantify rot to replace the visual method that has become impossible with mechanically harvested grapes.

During this research, we became interested in the rationale for the 2% rejection level. Many of the compounds

produced by molds, or filamentous fungi, are perceived as undesirable aromas, and may be described as earthy, dank, or musty. A number of mushroom and earthy off-odors compounds have been characterized and associated with species of Botrytis, Penicillium, Aspergillus and Rhizopus. Yeast and bacteria also produce other compounds such as acetic acid and ethyl acetate that may have undesirable sensory effects. Many winemakers are concerned because elevated rot levels may result in objectionable organoleptic qualities in wine that directly

impact the value and salability of the finished product. What, we wondered, is at what level of rot do flavor differences become obvious?

Several investigations have been conducted to determine the relationship between various levels of rotten grapes and their perceived wine quality, as determined by tasting trials. Nelson and Ough (1966) at UC Davis made wines from mixtures of sound and moldy Thompson seedless grapes at 0, 10, 20, and 40% moldy grapes. Sensory analysis was done using a 20-point quality score but there were "too few results for statistical analysis." However, they did

not find that quality scores correlated with moldiness. In a subsequent study Loinger and his team in Israel (1977) produced wines with sound and moldy Semillon grapes at 0, 5, 10, 20, 40 and 80% moldy grapes. Appearance (2.4 points), aroma (4.8 points), flavor (8.0 points), and harmony (4.8 points) were rated. Three wine tasters tasting the wines two times rated both the 5% and 10% rotten wines as not only acceptable to consumers but of quality somewhere between 'good' and 'very good', with ratings of 11.66 and 11.06, respectively, versus 13.92 for the 0% rot wine. Over three vintages, two of our graduate students and one un-

Susan Rodriguez
Research Fellow, Lecturer, and Director, Wine Sensory Lab

Figure 1: Fermentations in triplicate of Zinfandel with 5%, 10%, 15%, 20% moldy grapes and 5 replicates of control wine made with 100% sound berries.

dergraduate double major in enology and viticulture, incorporated a winemaking project into their rot research to attempt to answer the question, "At what level of moldiness do sensory difference(s) become discernible?"

Hatice Durgun produced Chardonnay wines by mixing blended moldy grapes, inoculated with summer bunch rot molds Aspergilus, Rhizopus, and Penicillium, incubated in our lab, with crushed, pressed

must from sound Chardonnay grapes, at 0, 1, 2, 3, 4 and 5% by weight. Chardonnay wines were made in triplicate for each rot level: thus 18 lots of wine, 7.5-gal each, were cold stabilized, filtered, and bottled. Difference testing of these wines was conducted in the VERC Sensory Lab using 24 panelists.

The objective of difference or discrimination testing is to establish a statistically significant (95% confidence level) difference between two products. In the triangle test that we used, three glasses of wine are presented to the panelist. Two are the same. They are asked to smell and taste the

three wines and pick the different one. They are encouraged to comment on the nature of the difference(s) as they perceive them, but this is not part of the test. The 1%, 2% and 3% rot wines were found not to differ significantly from the 0% rot wine. The 4% and 5% rot wines were detected as significantly different from the 0% wine. None of the comments solicited from the panelists described any of the wines as moldy, earthy, musty, etc. Subsequently, lorge Ramirez-Perez made Zinfandel wines containing 0, 2, 4, 6, 8 and 10% rot. These 18 wines (triplicates of each rot level) were made in 17-gal fermenters. None of the moldy Zinfandel wines at 2%, 4%, 6%, 8% or 10% rot, differed significantly from the 0% rot wine when tested as above in the VERC Sensory Lab. Consequently, in 2013, Patrick Jackson made Zinfandel wines with 0, 5, 10, 15, 20% rot. These 17 wines were made in 20-gal fermenters. When these wines were tested in the VERC Sensory Lab, the 5% and 10% rot wines were again found not to differ significantly from the 0% rot wine. The 15% and 20% rot wines, however, were both detected as significantly different from the control wine. Again, none of the comments solicited from the panelists described any of the wines as moldy. In fact, several panelists commented that they preferred the 15% and 20% rot wines. Plans are being made to conduct a preference test with the 2013 Zinfandel wines.

The impression of consumers and even winemakers regarding the presence of moldy or rotten grapes is that none is better than any. Sauternes are a notable exception— beautiful, expensive wines made from rotten, albeit "specially rotten" grapes in Bordeaux. This raises the intriguing possibility of expanding palates by making wines that include small portions of particular rot-infected grapes.

#### References

Nelson K. and Ough C (1966). Chemical and sensory effects of microorganisms on grape musts and wine. *American Journal of Enology and Viticulture* 17: 38-47.

Loinger C., Cohen S., Dror N. and Berlinger M (1977). Effect of cluster rot on wine quality. *American Journal of Enology and Viticulture* 28: 196-198.



Figure 2: Patrick Jackson and Julian Maher pressing the 17 Zinfandel wines into 15-gal kegs.



Figure 3: Panelists in computerized booths in the VERC Sensory Lab doing triangle tests of Chardonnay wines.

# **IN-KIND SUPPORT MATTERS**

Beyond funding, industry partners are critical for the success of research projects. In-kind contributions and access to facilities are key for researchers, and the opportunity to apply research in field settings makes Department findings that much more impactful.

Three wine companies, The Wine Group, Delicato Family Vineyards, and E & J Gallo Winery, have been instrumental in the success of the 2011-2014 vineyard sampling component of Thornton and Rodriguez's rot quantification research. Vineyards (15-21 per year) were random-block sampled the day before harvest-- the timing is crucial because Thornton and Rodriguez compare the rot analysis from field samples with the gondola samples at the test stand from these same vineyards.

The project is especially indebted to Elizabeth Dickson, a Fresno State Viticulture & Enology MS graduate working in grower relations at E & J Gallo Winery, for her amazing direction to 21 vineyards just before harvesting commenced. The Wine Group allowed Thornton and Rodriguez's team to sample gondolas of harvested grapes in the vineyard or gave samples from trucks at the winery test stand. Delicato Family Vineyards also gave samples from the truckloads at the test stand, and E & J Gallo provided the FTIR spectrum of every truck sample from the vineyards sampled.

### **Events**

# Recent Highlights

The fall semester at Fresno State has been rich with activities and learning opportunities for our viticulture and enology students. The vineyards, winery, and raisin plant always give a unique opportunity to step outside the classroom and experience the real world of grape and wine production. In September, Sonet Van Zyl's raisin produc-





tion class was found busy harvesting fruit from the Vincent E. Petrucci vine while Hend Letaief's winery production class experienced the long hours and responsibilities of the busy crush season. According to interim winemaker Matt Rule crush officially ended for the Fresno State Winery when they received the last fruit of the season on November 19 from Sanliang Gu's research project at Fresno State.





The sounds of the raisin plant facility in motion also meant that our students were getting hands-on experience processing and packing raisins to be sold at the Fresno State Rue & Gwen Gibson Farm Market.





Teams of staff and student research assistants also gain valuable experience and continue to provide support to faculty projects funded by private industry and grants.

In addition to their studies, our student organizations continue to do a great job engaging with our alumni,



industry, and the community. The Enology Society attracts many community members at their weekly Thursday night educational meetings. At the request of Fresno State alum Kevin Phillips of Michael David Winery in Lodi, the Viticulture Club organized a Fresno State football tailgate for the



MDW team in September where they had the opportunity to network with many industry friends. Other club activities this fall included harvesting and making 55 gallons of Sauvignon

blanc wine from grapes grown in a student's family vineyard in Lake County, volunteering at the Fall Cornucoppia event, and hosting their successful Fall Harvest BBQ and fundraiser.

Faculty arranged several class field trips to the LangeTwins Vineyards and Winery in Acampo, the E&J Gallo Winery in Livingston, and the Sun-Maid raisin processing facility this fall to see the facilities and learn from experienced industry leaders. Read more about these visits on page 15.



On October 29, the V. E. Petrucci Library hosted many members of the on– and off-campus community at its Open House. Visitors were able to meet our librarian Britt Foster, visit the library's new and expanded facilities, and learn about its collection and services. Many friends and col-



leagues, including Vincent E. Petrucci, founder of the viticulture and enology programs at Fresno State and the library's namesake, attended the event.

In November Kaan Kurtural and his research team hosted an all-day workshop at the Department of Viticulture and Enology for West Coast Grape Farming and Bronco Wine



Company that included presentations, wine samples, and vineyard equipment demonstrations. Following this meeting, attendees enjoyed a tailgate to-

gether before attending a Fresno State home football game.

Later in the month, the department hosted a visit from a group of UCCE Master Gardeners that included an educational forum as well as a tour of the winery. Presentations were given by Jim Kennedy, Britt Foster, Ryan Hessler, and Kevin Smith.



In November, the department faculty and staff attended several grape and wine industry trade shows where they were able to connect with many alumni and industry friends: November 13 ROOTSTOCK in Napa, November 14 Central Coast Grape Expo in Paso Robles, and November 18 Grape, Nut & Tree Fruit Expo in Fresno. Jim Kennedy also gave a presentation on astringency in wine quality at the Central Coast Grape Expo.



The Fresno State Winery opened its doors to the community on November 20th at Le Vin Nouveau. This event cele-

brates the release of the winery's new nouveau-style wines that are perfect for holiday gatherings. Staff and students enjoyed meeting university colleagues



and members of the community at this festive evening filled with food and wine tasting.

As the semester comes to a close, the department looks forward to a new year filled with many exciting challenges and projects. Students are already looking forward to per-



forming all of the spring operations in the winery and the vineyard team anticipates working on many development projects and new plantings.

Cheers to 2014 and to another successful year to come!

# **Events**

# Fresno State Students In Demand

On December 3, twelve of our alumni and industry friends took time out of their busy schedules to come to Fresno State to attend the **Resume Workshop and Industry Panel Session** in the Department of Viticulture and Enology. "For this event, we invite several experienced members of the grape and wine industry who possess a wide range of positions, personal experiences, and career paths. Through one-on-one sessions and an open panel discussion, our industry guests spend the morning reviewing and critiquing student resumes and offering career-related advice and strategies," said Cynthia Wood, event coordinator. The Resume Workshop is the third career event of its kind that has been organized by the department. Student participants reported once again that this is one of the most beneficial activities that is offered by the department. "The students who attended are now prepared and ready to polish their resumes for our upcoming Internship and Career Fair on February 25. They have learned from skilled individuals how to stand out when going through the process of seeking out internships and positions in the grape and wine industry," said Wood.



# **Events**

# Calendar—Where You Can Find Us

### Stay tuned for dates and locations for upcoming alumni gatherings—veaafresno.org

- January 15—Spring Semester begins. Enology Society meetings TBA (www.facebook.com/enologysocietyoffresno)
- **January 20**—Vintage Report Napa 2014 (Hend Letaief presenting), Napa (www.vintagereport.com/en)
- January 27-29—Unified Wine & Grape Symposium,
   Visit us at Booth # 830 (www.unifiedsymposium.org)
- January 28—Fresno State Viticulture & Enology Alumni
   & Friends Reunion, Hyatt Regency Sacramento
- **February 7—**FFA Vine Pruning Contest, Fresno State
- February II—Wines & Vines Oak Conference (Jim Kennedy presenting), Napa (www.wvoak.com)

- February 25—Fresno State Viticulture & Enology Internship and Career Fair (http://bitly.com/1vmvCvL)
- March 20—Enology Society Annual Budbreak Bash,
   Fresno area (www.facebook.com/enologysocietyoffresno)
- April 18—FFA Vine Judging Contest, Fresno State
- April 19—Viticulture Club Papa Petrucci 5K Run, Fresno State Vineyards (www.facebook.com/ FresnoStateViticulture Club)
- April 25—Save the Date—Vineyard Mechanization Seminar, Fresno State Viticulture & Enology
- May 14—Viticulture & Enology Graduates' Dinner— Fresno State Department of Viticulture & Enology

# Join Us In Memoriam





LEDIO "Lee" FANUCCHI (1931-2014) It is with sadness that we share the news that one of our alums passed away on Thanksgiving Day at the age of 83. Ledio Fanucchi was a good friend and supporter who cared deeply for the viticulture and enology program at Fresno State. Many of

us recently had the pleasure of visiting with him on November 14 at the Viticulture Club's Fall Harvest BBQ in Sanger. He was a "charter member" of the Viticulture Club and after studying agriculture he graduated from Fresno State in 1954. At the time of his death, he was a past-president and member in good standing of the VEAA (Viticulture and Enology Alumni Association). Ledio and his wife Val also spent many years volunteering at A Celebration of Wine, the viticulture and enology alumni's fundraising event for the V. E. Petrucci Library. He loved to tell stories of his days as an NFL football player for the Chicago Cardinals, his decorated military service, and his time as student in the viticulture program at Fresno State. Upon retiring, he enjoyed his passion for farming and became a master gardener through the UCCE program. He is survived by his wife of nearly 60 years, their family, and many friends.

# CALIFORNIA STATE UNIVERSITY, FRESNO

# **Department of Viticulture and Enology**

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