



# **ANNUAL REPORT**





# FROM THE EXECUTIVE DIRECTOR

Dear Friends and Supporters,



AM PLEASED TO SHARE with you the 2014-2015 Annual Report of the Robert Mondavi Institute for Wine and Food Science at UC Davis.

Davis.

Few universities
have matched UC
Davis's consistently
high standards in research
and education. The university

ranks 1<sup>st</sup> in the U.S. in the number of faculty publications in agriculture, entomology, food science, and plant and animal sciences (ScienceWatch). And for the third consecutive year, UC Davis ranked No. 1 in the world for teaching and research in agriculture, forestry and veterinary medicine (QS World University Rankings, 2015).

These stellar rankings are due, in part, to the excellence of our students. The Robert Mondavi Institute significantly increased its support of students last year, awarding over \$60,000 in Fellowships, Travel and Research Grants, Internship Awards, and Poster Awards to graduate students in the Departments of Food Science and Technology, Viticulture and Enology, and Entomology and Nematology.

Within the Institute, the Honey and Pollination Center and Olive Center have each, independently, played an important role in supporting students while making lasting contributions to their industries. The Olive Center has mentored 20 graduate students and 70 undergraduate students since it was established in 2008. A multidisciplinary team of undergraduates working with the Olive Center won the prestigious grand prize at iGEM, an international competition in Boston, with over 2,500 participants. Their project developed a simple, cost-effective biosensor to detect olive oil quality. Other Olive Center accomplishments

last year included receiving a \$367,000 grant from the USDA Specialty Crop Block Grant Program, \$60,000 for table olive research and \$40,000 for olive oil research. Sensory and Master Milling Short Courses attracted over 150 participants from 15 states and 10 countries, and olive product sales topped \$125,000.

The Honey and Pollination Center supports students through sales of its products (honey, flavor wheel, and notecards). A portion of the proceeds are directed to support bee health research in the Department of Entomology and Nematology. Philanthropy has also helped support our students through the Center. Doug and Juli Muhleman, members of the Institute's Board of Executives, created the "Pollinator Fund" to support graduate students whose research area is related to bee health, pollination science or native pollinators. The Honey and Pollination Center greatly expanded its outreach efforts last year. The 2nd annual Mead Making Short Course attracted attendees from more than a dozen states and as far away as England. Almost 400 individuals attended our first annual Bee Health Symposium, made possible by a generous gift from the Henry J. Kaiser Foundation.

The generosity of our donors, members of the Friends Program, and our Industry Partners has enabled the Robert Mondavi Institute to support and promote our next generation of scientists. Continued support will allow us to implement our RMI 2020 Vision: To generate and sustain a vibrant ecosystem of relationships among university researchers and students, industry thought leaders, and consumers.

I'm confident we are blazing the path Robert Mondavi set us on more than a decade ago!

CLARE HASLER-LEWIS

Executive Director, Robert Mondavi Institute
for Wine and Food Science



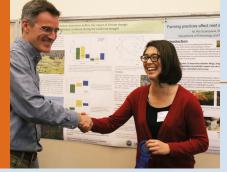
of Viticulture and Enology and

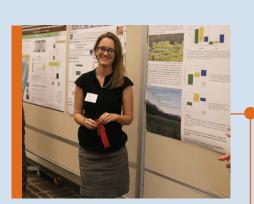
Food Science and Technology gathered in the Robert

Mondavi Institute Silverado Vineyards Sensory

Theater for the first joint departmental research symposium. The day featured 12 faculty research updates and guided discussions in four areas: food innovation, food integrity and authentication, food functionality, and environmental stewardship in food production.









# Inaugural Bee Symposium **Graduate Student Poster Awards**

Graduate students from the Department of Entomology and Nematology participated on May 9, 2015. They were awarded \$1,500, \$1,000 and \$750 for first, second and third place, respectively.

# 1st PLACE

REI SCAMPAVIA is a Ph.D. student of Professors Ed Lewis and Neal Williams. Her poster title: Native Bee Nest Site Selection in Agroecosystems.

Recognizing

Excellence

# 2nd PLACE

# JENNIFER VANWYK is a Ph.D.

student in the Graduate Group in Ecology and a student of Neal Williams. Her poster title: Wet Meadow Restoration Buffers the Impact of Climate Change: Pollinator Resilience During the California Drought.

# **3rd PLACE**

LESLIE SAUL-GERSCHENZ is a Ph.D. student of Professor Neal Williams. Her poster title: Native Bee Parasite Shows Multitrait, Host-Specific Variation and Local Adaptation.



Graduate students from the Departments of Food Science and Technology, and Viticulture and Enology took part in the competition on September 26, 2014. First, second and third place winners received \$1,500, \$1,000, and \$750, respectively.

# 1st PLACE

LUIS GARAY is a Ph.D. student in the Department of Food Science and Technology. His poster title: Towards a Yeast Based Multivalue Technology Platform.

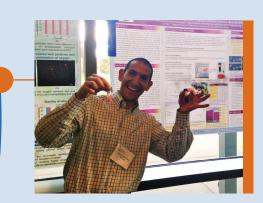
# 2nd PLACE

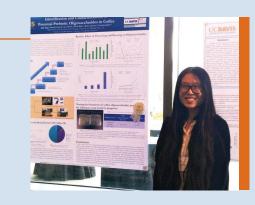
ALICE TANG is a Ph.D. student in the Department of Food Science and Technology. Her poster title: Characterization of Volatile Compounds of Virgin Olive Oil Originated in the United States.

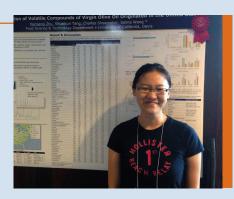
# 3rd PLACE

TIEN TIEN is a Ph.D. student in the Department of Food Science and Technology. Her poster title: Identification and Characterization of Potential Prebiotic Oligosaccharide in Coffee.













# **ANA PETERSON**

Doctoral Student, Viticulture and Enology **AWARD:** \$1,500 **MEETING: 2015** In Vino Analytica

Italy **ABSTRACT:** Analysis of Acetaldehyde Condensation Reaction

Scientia; Trentino,



Doctoral Student, Viticulture and Enology **AWARD: \$750** 

**MEETING:** American Society for Enology and Viticulture Annual Conference; Portland, Oregon **ABSTRACT:** The

Grape Cultivars in

Effect of Water Deficits on Berry Growth and Composition of Seventeen Wine

> the San Joaquin Valley

# **ALEXANDER LEVIN**

**ABSTRACT:** Insights into human milk oligosaccharide utilization by Bifidobacterium longum subsp. longum SC596 and

# **NINA KIRMIZ**

Doctoral Student, Food Science and Technology

**AWARD: \$750 MEETING:** 

Federation for **Academic Societies** for Experimental Biology; Big Sky, Montana

Bifidobacterium

breve SC95

Enhanced Encapsulation of Infusion

# **STEPHEN YOUNG**

Doctoral Student, Food Science and Technology

**AWARD: \$750 MEETING:** Institute of Food Technologists Annual Meeting & Food Expo 2015; Chicago, Illinois

## **ABSTRACT:**

Bioactives into Yeast Microcarriers using Pressure Facilitated

# **JAKE URETSKY**

Doctoral Student, Viticulture and Enology

**AWARD:** \$750 MEETING: 66th American Society of Enology and Viticulture National Conference; Portland, Oregon

# **ABSTRACT:**

Split-Container Culture Reveals Developmental Differences in Grapevine Roots Grown in

Heterogeneous Soils

# **RYAN DOWDY**

Doctoral Student, Food Science and Technology

**AWARD:** \$500 **MEETING: SIMB** 37th Symposium on Biotechnology for Fuels and Chemicals; San Diego, California

# **ABSTRACT:**

**Evaluation of Tomato** Waste Feedstocks for Microbial Food Cells

# **ROBERT MONDAVI INSTITUTE INTERNATIONAL INTERNSHIP AWARD**

The recipient of this inaugural award was Michael Garrison, a Master's Student in the Department of Viticulture and Enology. This \$4,000 award supported Garrison's 6 month internship at Domaine Graménon, Côtes du Rhône. Garrison graduated from Virginia Tech in 2003 with a B.S. in Aerospace Engineering.

# INDUSTRY PARTNERSHIP PROGRAM

Helping Industry Innovate



The 2015 Arla Foods Graduate Student Fellow is FANG (DIANE) DOU, a Ph.D. student in the Department of Food Science and Technology working with associate professor Nitin Nitin. Ms. Dou received \$40,000 to support one year of her

research focusing on the detection of bacteriophage contamination in dairy streams. Arla cooperative is a global dairy company owned by European dairy farmers with headquarters in Aarhus, Denmark. Arla is the third largest dairy cooperative in the world.



OLIVIA YU, a Ph.D. student in the laboratory of Dr. Kerri Steenwerth,

Department of Viticulture & Enology was the 2013 Pentair

Graduate Fellow. Her research focused on advancing the knowledge of greenhouse gas emissions

from vineyard floor management practices. Pentair is a global water, fluid, thermal management, and equipment protection partner with industry leading products and services.

2014 - 2015

**GRADUATE STUDENT FELLOWS** 

# **INDUSTRY PARTNERS**

# Pentair

www.pentair.com

# Arla Foods

www.arla.com

BENEFITS OF MEMBERSHIP IN THE INDUSTRY PARTNERSHIP PROGRAM:

Single point of access to connect to faculty across UC Davis

Annual research update tailored to each Partner interest area

Graduate Fellows
Receive \$40,000 to
support one year of
their research in an
area of interest to
the Partner.

Facilitated access to state-of-the-art facilities, including the LEED Platinum winery, brewery, and food, and milk processing laboratories

The opportunity to name a Graduate Fellow in the company name

# November 6th 2014

Lectureship on Wine Business

Don St. Pierre, Jr. founded ASC Fine Wines and was CEO until 2012, when he assumed the role of Executive Chairman. In 2011, he was ranked the #7 most influential person in the wine industry by Decanter magazine and was awarded "International Man of the Year" by Wine Enthusiast magazine.



campus.

Don St. Pierre, Jr.

Co-founder & Board

Member, ASC Fine

Wines

The Walt Klenz Lectureship series is a bi-annual event that brings renowned wine makers and wine industry professionals to the UC Davis

The WALT KLENZ

# May 19th 2015

Richard Mendelson has handled legal matters involving almost every aspect of the wine business. Responsible for obtaining recognition for some of the most well-known American Viticultural Areas, he assisted the California government with the legislation to protect the world-famous Napa Valley geographical indication.



Richard Mendelson

Director, Wine Law and Policy Program UC Berkeley; Attorney, Dickenson, Peatman & Fogarty, Napa



# **Reports and Publications**

Full reports at olivecenter.ucdavis.edu

• CORRELATING OLIVE OIL SENSORY AND CHEMISTRY RESULTS

Report

Report

OLIVE

Report

- FATTY ACID AND STEROL PROFILES OF OLIVE OIL PRODUCED IN THE UNITED STATES
- PACKAGING INFLUENCES ON OLIVE OIL
   QUALITY: A REVIEW OF THE LITERATURE
- THE EFFECT OF DIFFERENT COLD STORAGE CONDITIONS ON THE COMPOSITIONS OF EXTRA VIRGIN OLIVE OIL
- LINKING CHEMICAL PARAMETERS TO SENSORY
  PANEL RESULTS THROUGH NEURAL NETWORKS
  TO DISTINGUISH OLIVE OIL QUALITY

  Journal of Agricultural Food Chemistry
- AN IN-DEPTH ASSESSMENT OF ANALYTICAL METHODS FOR OLIVE OIL PURITY, SAFETY AND QUALITY CHARACTERIZATION
  - Journal of Agricultural Food Chemistry

    VOLATILE CONSTITUENTS IN SENSORY
- DEFECTIVE VIRGIN OLIVE OILS

  Flavour and Fragrance Journal
- HIGH-PERFORMANCE LIQUID
  CHROMATOGRAPHY WITH FLUORESCENCE
  DETECTION FOR THE RAPID ANALYSIS OF
  PHEOPHYTINS AND PYROPHEOPHYTIN IN
  VIRGIN OLIVE OIL
- QUANTUM CHEMICAL STUDY
  OF THE ISOMERIZATION OF
  24-METHYLENECYCLOARTANOL, A POTENTIAL
  MARKER OF OLIVE OIL REFINING
- CHARACTERIZATION OF VOLATILE COMPOUNDS OF VIRGIN OLIVE OIL ORIGINATED IN THE UNITED STATES Journal of the American Oil Chemists' Socie



OCTOBER 2014: The sixth annual Master Milling Short Course was led by Pablo Canamasas, production manager at Australia's Boundary Bend Ltd. Participants visited three area producers, including Yocha Dehe Wintun Nation and Séka Hills.

**NOVEMBER 2014:** Twenty volunteers joined director Dan Flynn and research director Selina Wang at the university's olive grove to harvest four tons of olives. This is the 10th year of the harvest.

**JUNE 2015:** The Olive Oil Sensory Course was the largest and most successful yet, attracting participants from 18 states and 6 countries.

Stay up to date: olivecenter.ucdavis.edu/events





Keeping Bees Healthy attracted almost 400 beekeepers, gardeners, scientists and students. Topics included bee health, backyard beekeeping, and the effects of pesticides on bee populations. Marla Spivak, a MacArthur "Genius" Grant recipient for her research on bee health, was the Keynote. The symposium was made possible by a generous donation from the Henry J. Kaiser Family Foundation.



# Chocolate Confectionary CARAMEL CONFECTION CARAMEL CONFECTION CONFECTION

The Wheel offers a huge lexicon to describe various flavors in honey. The Center worked with 25 tasters

and sensory scientist Sue Langstaff of Applied

Sensory, Sacramento, Calif. Aromas and flavors cover

the full sensory experience from primary tastes of sweet, bitter, sour, salty through common fruity and floral flavors, to the uncommon marshmallow and cinnamon and over 90 more! The Wheel was featured on NPR's 'Salt', in *Smithsonian* and *Science Magazine* online, and other food oriented magazines.

# Picnic Day

# April, 2015

Picnic Day attracted 2,000 visitors who tasted a variety of California honeys and learned about apiculture from our on-site beekeeper. An observation beehive was on display.



This past June, the Muhleman Family established the Pollinator Fund with a private donation and the proceeds from the Soderquist Award from the University. \$10,000 will support graduate student research in bee health, pollination science or native pollinators

# Mid-Winter Beekeepers Feast

# January, 2015

An opportunity to showcase the bounty bees help bring to the table and honor Center donors and supporters. The menu featured local fare, most donated by northern California farmers and producers. A highlight was a guided tasting of meads led by Darrell Corti.

# Center Supporters and Donors

# \$25,000

Kaiser Family Foundation

## \$2,500

Mike Cicchella

Natural American Foods

# \$1,000

American Beekeeping Federation
Les Dames d'Escoffier, San Francisco

# \$500

Carmel Honey Company Moonlight Meadery

O Olive Oil

Sonoma Syrup Co.

Z Specialty Food

\$250

First Northern Bank



# November, 2014

The two-day course featured talks by mead makers at the forefront of this growing beverage sector including: Petar Bakulic, president, Mazer Cup International Mead Competition; Michael Fairbrother, owner, Moonlight Meadery; Mike Faul, owner, Rabbit's Foot Meadery; and Ken Schramm, author, *The Compleat Meadmaker* and owner, Schramm's Mead.







and Pollination Center

at the Robert Mondayi Institute









# **GREAT CHEFS SERIES**

September 13, 2014 & February 28, 2015

Chef Daniel Olivella is a native of Spain who owns B44 Catalan Bistro in San Francisco and Barlata Tapas



Bar in Austin, Texas. During the morning session, 14 attendees had the opportunity to cook with Olivella in the Institute's Food Innovation Kitchen. After lunch, Olivella hosted a paella-making demonstration and tasting of Spanish wines.



Chef Patrick Mulvaney is the owner of Mulvaney's B&L in Sacramento, Calif., a mainstay of the region's Farm-to-Fork Movement. The full day event educated the public on sustainable culinary practices beginning with in-depth cooking instruction for 17 on how to transform a hog from the UC Davis Meat Lab into a delicious lunch.







at the Robert and Margrit Mondavi Center for the Performing Arts

An exclusive wine tasting experience for members of the Friends of the Robert Mondavi Institute Program at or above the Reserve level. We thank the wineries that poured during the 2014-15 season.

Cakebread Cellars

Justin Vineyards & Winery

Hestan Vineyards

Putah Creek Winery

Boeger Winery

Robert Mondavi Winery

SCRIBE Winery

Frank Family Vineyards

Todd Taylor Wines

mondaviarts.org/uncorked/

# FRIENDS of the RMI Events







The Institute welcomed 80 members of the Friends program to the Fall Welcome Reception. They gathered in the Sensory Building Lobby to learn about student research projects, enjoy tastings of olive oil and honey and to tour the LEED Platinum Teaching and Research Winery.





The Robert Mondavi Institute hosted its first annual Holiday Soirée on the evening of December 4, 2014 in the Sensory Building Lobby. It was an opportunity to thank donors and Friends who supported the institute's outreach, education and research mission during the year.





Students led sensory experiences during the Spring "Sense-ation" on March 26, 2015. Henry Wedler, Ph.D. candidate in Organic Chemistry, led a blindfolded "Sightless Sipping" of wine; Shawn McIlvenna, Senior, V&E, explored how glass shape impacts the taste of sparkling wine taste; and Maile Kahn, Junior, FST, demonstrated "spherification," shaping liquids into spheres.

Victor C. Chu Estate Paul and Sandra Montrone Douglas and Julianne Muhleman College of Agricultural and Environmental Sciences

Douglas and Julianne Muhleman

## Gourmand

Stephanie Gallo Clare Hasler-Lewis and Cameron Lewis

# Reserve

Erinne and Jim Aboytes Kathy and Abel Barrientes Wayne and Jacque Bartholomew Elizabeth Clair Randy Cobb and Kathie Benko Darrell Corti Kay Gist

Al and Margaret Giuliani Jane Killebrew Suzanne and Dan Kimmel Chuck and Lori Krouse Margaret Lawson John Lescroart and Lisa Sawyer Robert and Barbara Leidigh Harold McGee

Bill and Nancy Roe Glenn and Julie Nedwin Laurence Seigler Robert and Susan Sliva Roger White Glenn Workman Jean-Michel and Janet Valette **Anonymous Donors** 

# Vintage

Karl Gerdes and Pamela Rohrich Bill and Linda Schmidt

James and Penelope Shackelford Mary Horton

Jina Lopez Laura and Murry Baria

# Culinary

Rafael De La Fuente Michael and Sofie De Nardi Dan Sperling Don and Karen Fouts Chuck and Nancy Shulock

Anne and Jim Stevens Patricia Pesavento and David Warland Thomas Engel Tom and Rebecca Ramme Jenise Fahrni and Eric Shih

Grant and Lois Chappell Clay Gregory Barbara Fingerut Iack and Melanie Williams III

www.rmi.ucdavis.edu/support



# **Executive Committee**

# David Block (Chair)

Chair, and professor and Health Institute and chair, Department of Viticulture and Enology

# Michael McCarthy (Vice Chair)

Professor and chair, Department of Food professor, Biological and Agricultural Engineering Sharon Shoemaker

# **Diane Barrett**

Specialist in Cooperative Food and Agricultural of Food Science and Technology

# **Charlotte Biltekoff**

American Studies and Department of Food Science and Technology

# Linda Bisson

# Bruce German

Director, Foods for of Food Science and Technology

# Lovell (Tu) Jarvis

Resource Economics

Executive director, California Institute of

# Francene Steinberg

Professor and chair,

# Ed Lewis

of Entomology and Nematology, and Associate Dean for and Environmental

# HONORARY BOARD

Ann and Gordon Getty Paul Montrone

# GLENN WORKMAN JOINS THE BOARD OF EXECUTIVES



finances, retail and hospitality. Workman

# **Board of Executives**

ROBERT BOYNTON is adjunct professor of applied economics and management at Cornell University and retired senior vice president of Marketing as a UC Davis Foundation trustee and and Sales, Leprino Foods Company.

PAUL COLETTA served as the chief marketing officer for Jamba Juice, Pinkberry and POM Wonderful. He has worked at Disney, Viacom and Hewlett-Packard.

**DARRELL CORTI** is president of Corti Brothers, gourmet food and fine wine specialists in Sacramento, Calif.

AL GIULIANI (Chair) is the retired president and chief operating officer of Ready Pac Foods. He previously worked for Mars, US Foods, United Vintners and Quaker.

**CLAY GREGORY** is chief executive officer of Visit Napa Valley and former president of Jackson Family Wines.

MARGARET LAWSON is vice president and chief science officer at D.D. Williamson as well as past-president of the Institute of Food Technologists.

HAROLD McGEE is an author, New York prestigious "Johannes van Dam Prize," awarded to him in 2014 by the University of Amsterdam. His book On Food and culinary school

DOUG (Vice Chair) and JULI

MUHLEMAN are long-time supporters of UC Davis and the institute. Doug served chair of the Dean's Development Task Force for the College of Agricultural and **Environmental Sciences. He currently** chairs the Brewing Science Strategy Group within the Department of Food Science and Technology.

**GLENN NEDWIN** Previously CEO and President of Taxon Biosciences, Inc., has over 30 years of experience in the biotechnology industry.

WARREN QUILLIAM is MillerCoors senior director, Corporate Brewing and Malting, where he oversees brewing and malting operations for domestic and international operations.

JEAN-MICHEL VALETTE is Chair of Vinfolio and Sleep Number by Select Comfort, and Lead Director of the Boston Beer Company.

ROB TWYMAN is the regional president for Whole Foods Market, Northern California.

STEPHANIE GALLO is vice president of marketing for E. & J. Gallo Winery and leads the company's worldwide marketing for prominent brands, including Barefoot and Gallo Family Vineyards.



UC Davis supported Robert Mondavi's transition from a grape merchant to a world-renowned In return, his gift to build the Robert become an asset to of the Departments of Davis. Robert Mondavi would be extremely

# MARGARET LAWSON



ROBERT MONDAVI
INSTITUTE FOR WINE AND
FOOD SCIENCE

UC DAVIS OLIVE CENTER
AT THE ROBERT MONDAVI
INSTITUTE

HONEY AND POLLINATION
CENTER AT THE ROBERT
MONDAVI INSTITUTE

COLLEGE OF AGRICULTURAL AND ENVIRONMENTAL SCIENCES

### Clare Hasler-Lewis

Executive Director (530) 754-6349 cmhasler@ucdavis.edu

### **Babette Orendain**

Executive Assistant (530) 754-6349 brorendain@ucdavis.edu

# Stephanie Shimada

Director of Industry Relations and Events (530) 752-4180 shimada@ucdavis.edu

# Cindi Bradshaw

Assistant Director of
Community Relations
(530) 752-5233
cabradshaw@ucdavis.edu

## **Evan White**

Design and Communications emwhite@ucdavis.edu

# Dan Flynn

Director (530) 752-5170 jdflynn@ucdavis.edu

## Selina Wang

Director of Research (530) 752-0612 scwang@ucdavis.edu

# Shirley Li

Lab Manager spsli@ucdavis.edu

## Amina Harris

Director (530) 754-9301 aharris@ucdavis.edu

## Elizabeth Luu

Administrative Assistant luu@caes.ucdavis.edu

## **Kathy Barrientes**

Sr. Director of Development (530) 752-1602 ksbarrientes@ucdavis.edu

## Melissa Haworth

Director of Development (530) 979-1440 mdhaworth@ucdavis.edu



Enhancing our quality of life through wine, brewing and food sciences

The ROBERT MONDAVI INSTITUTE for WINE and FOOD SCIENCE

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