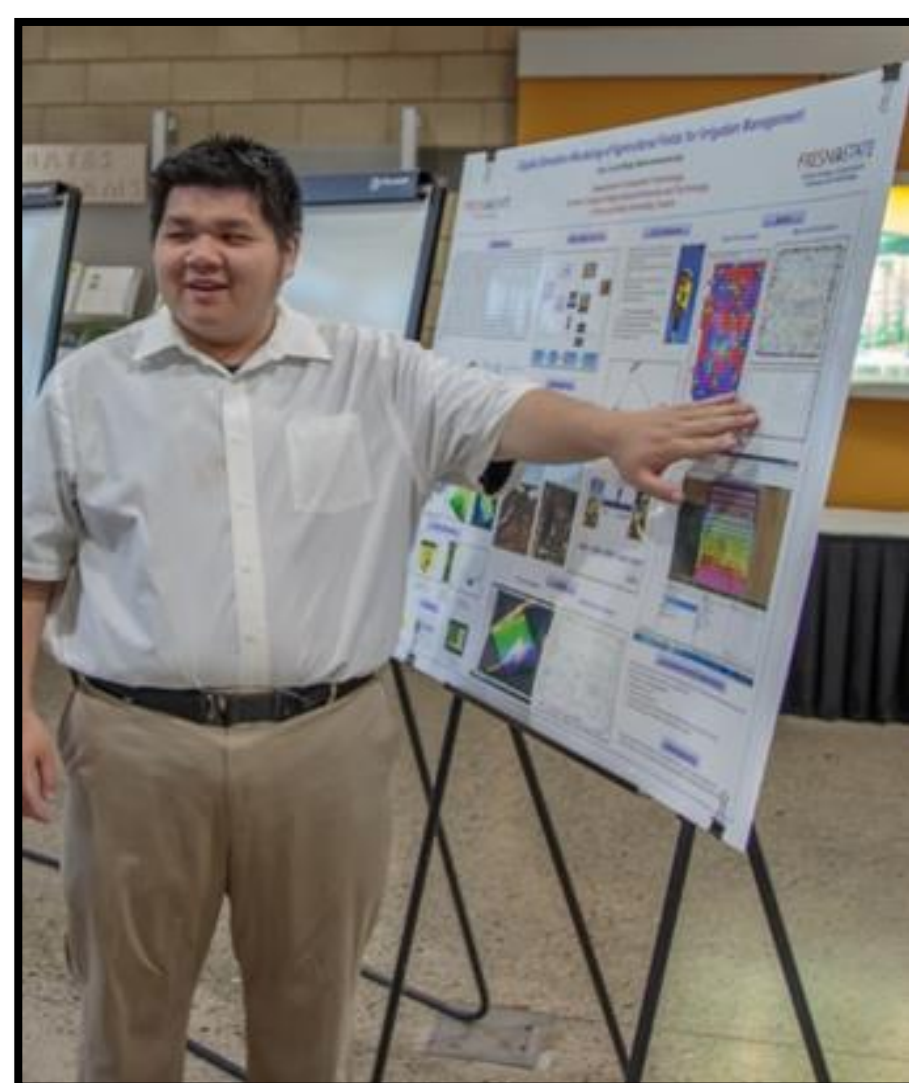


Promoting Undergraduate Research In Agriculture

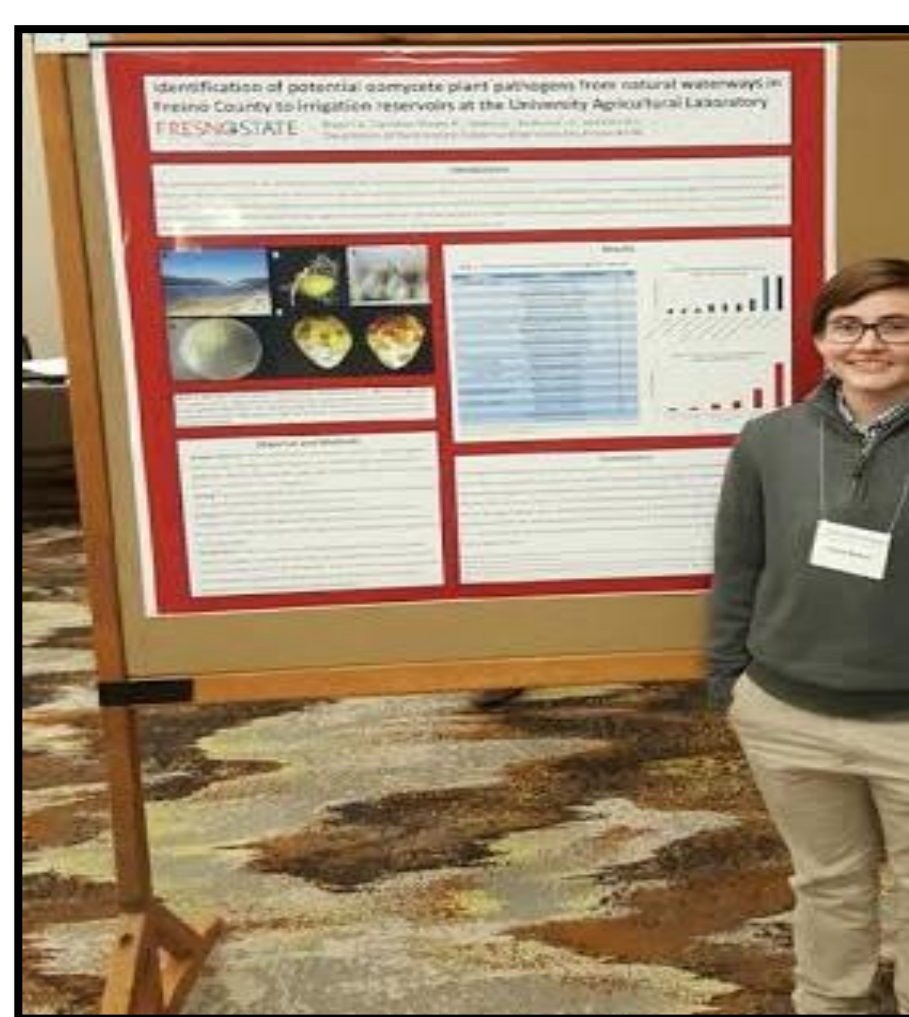
FRESNO STATE STUDENT SUCCESS

Balaji Sethuramasamyraja, Anil Shrestha, Dave Goorahoo, Florence Cassel Sharma, and John Bushoven

Jordan College of Agricultural Sciences & Technology, California State University, Fresno



Huy Le, an undergrad Industrial Technology student received the best Undergraduate research poster award at the 2017 ASABE (American Soc. Of Ag. & Bio Systems Engineers) CA/NV Section Meeting (Tulare, CA) for research on Digital Elevation Modelling (DEM) of Ag. Fields for land prep, water management and irrigation systems design.



Jessie Brazil, an undergrad Plant Science student won 2nd place in research poster contest of 2017 California Plant and Soil Conference (Fresno, CA). The title of her poster was 'Identification of potential oomycete plant pathogens from natural waterways in Fresno County to irrigation reservoirs at the University Agricultural Laboratory'.



Carolyn Chase, an undergrad Food Science student, presented a poster titled 'Sanitization of Whole Mango Fruit by Hot Water Immersion' was presented at the Long Beach Department of Health and Human Services - Food Systems & Public Health's S3 Symposium, Long Beach, CA.



Mark Castanon, a Plant Science undergrad won 1st place at the America/Soil Science Society of America undergrad video competition. Also, he presented his work 'Nematode host status of Crotalaria juncea' at 63rd Annual Conf. on Soil Borne Plant Pathogens, Davis, CA.



Jessie Brazil,
Plant Science



Mark Castanon,
Plant Science



Carolyn Chase,
Food Science



Diana Camerana,
Plant Science



Aldo Garcia,
Plant Science



John Lake,
Plant Science



Crystal Espindola,
Biology/Plant Science

2016 COHORT



Michael Serrato,
Plant Science

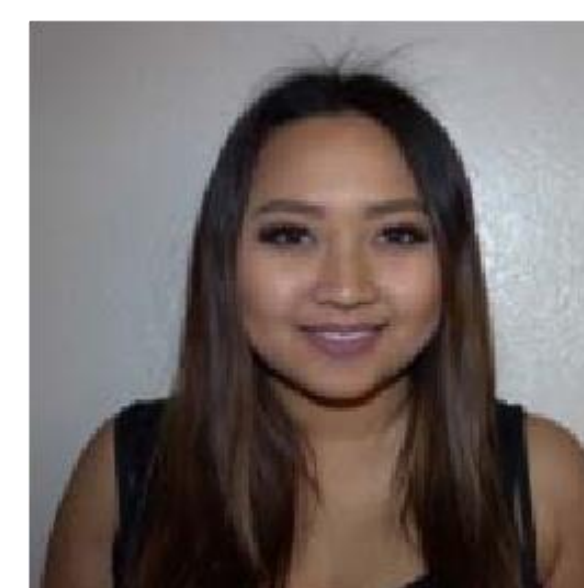


Huy Le, Industrial
Technology



Vivian Maier,
Plant Science

2017 COHORT



May Yang,
Plant Science



Alexis Jackson,
Plant Science



Katie Asai,
Plant Science



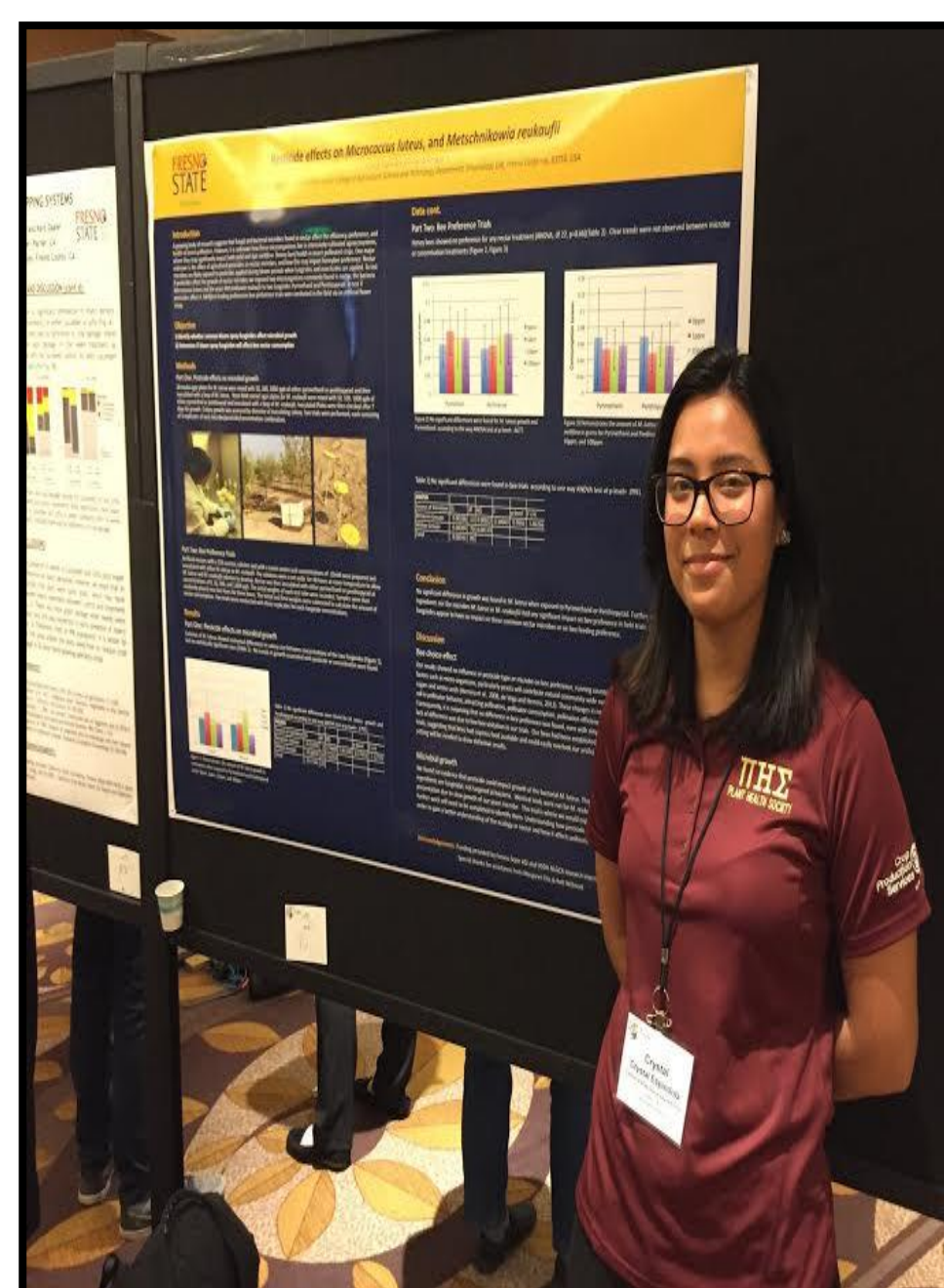
Briana Quintero,
Plant Science



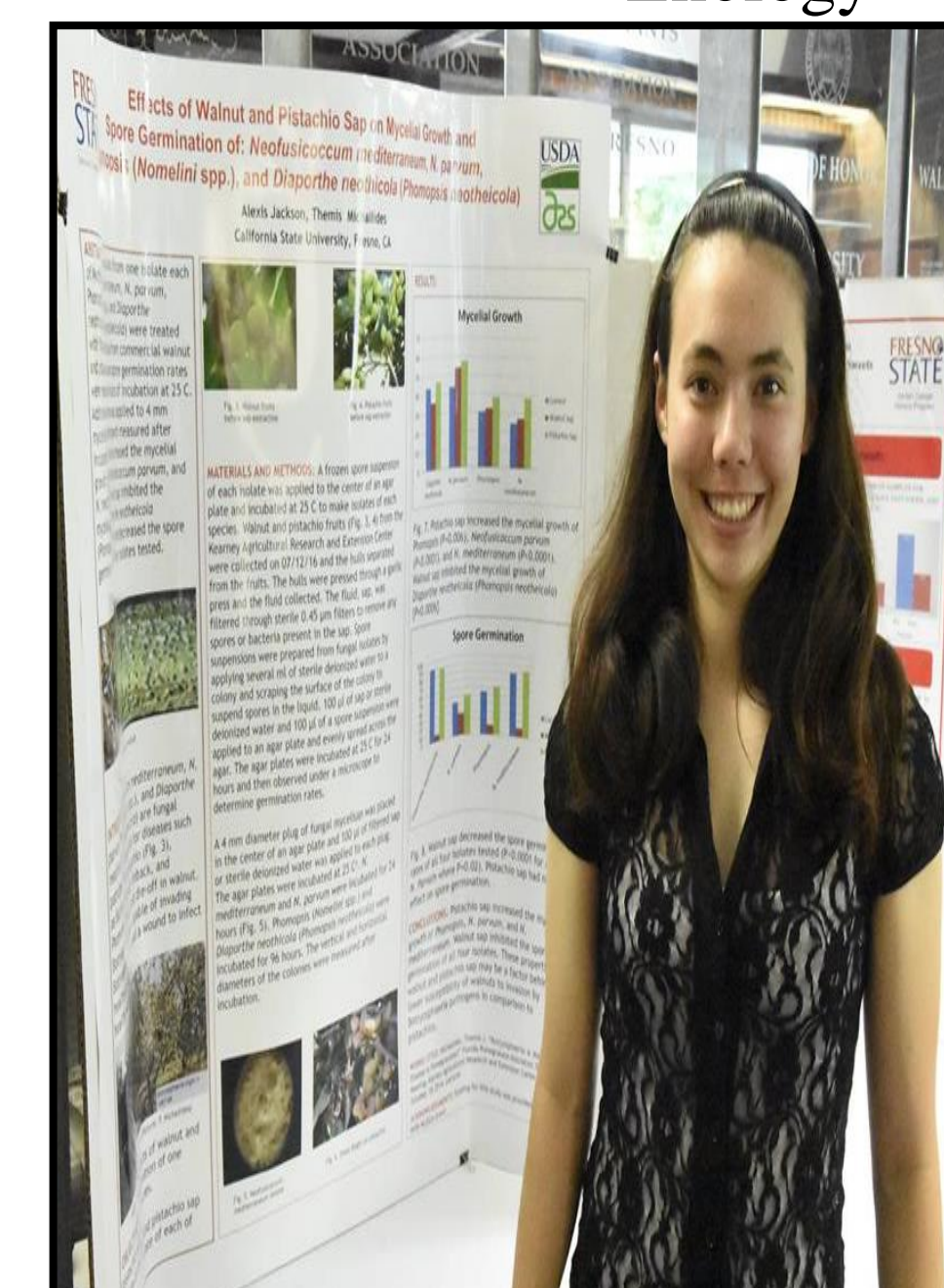
Pedro Martinez,
Viticulture and
Enology



Christina Sandoval,
Plant Science



Crystal Espindola, a Biology/Plant Science double major undergraduate student presented a poster titled 'Pesticide effects on Micrococcus luteus and Metschnikowia reukaffii' at the Pacific Branch of the Entomology Society of America annual meeting in Portland, OR in April, 2017.



Alexis Jackson won 1st place in the poster contest in the California Plant and Soil Conference held in Fresno, 2017. The title of her poster was 'Effects of walnut and pistachio sap on mycelial growth and spore germination of Neofusicoccum mediterraneum, N. parvum, Phomopsis (Nomelini spp.), and Diaporthe neothicola (Phomopsis neothicola)'



Michael Serrato, an undergrad Plant Science student won 1st place in the student oral presentation competition titled 'A comparison of thermal performance between the two pupa parasitoids, Pachycrepoideus vindemiae and Trichopria drosophile' at the 2017 Pacific Branch of the Entomology Society of America annual meeting in Portland, OR.



May Yang, an undergrad Plant Science student won 2nd place in the student poster presentation competition with her poster titled 'A comparison of thermal performance between the two pupa parasitoids, Pachycrepoideus vindemiae and Trichopria drosophile' at the Pacific Branch of the Entomology Society of America annual meeting in Portland, Oregon in April, 2017

Promoting Undergraduate Research In Agriculture: Experiential Learning And Pathways To Graduate Studies

Balaji Sethuramasamyraja, Anil Shrestha, Dave Goorahoo, Florence Cassel Sharma, and John Bushoven
Jordan College of Agricultural Sciences & Technology, California State University, Fresno

Introduction

Developing a highly-trained workforce in agriculture is a prerequisite for global food security. California State University, Fresno is primarily an undergraduate teaching institution located in the San Joaquin Valley, an area globally renowned for its highly productive agriculture. Students have the ability to attain postgraduate degrees and conduct research in areas pertaining to global food security, particularly production agriculture. This project, with assistance from a USDA-NIFA-NLGCA grant, initiated a coordinated effort to familiarize undergraduate students with applied agriculture research at land grant institutes, federal and state institutions in order to stimulate their interest in pursuing research-oriented careers and motivate them to enter graduate school in an agricultural discipline.

Objectives

1. To develop a collaborative research internship program with land grant institutions, state or federally funded research institutes
2. To set up a research internship program for Fresno State students to collaborate with the academic campuses (University of California) extension centers, and USDA stations in California
3. To provide leadership opportunities to the student interns by preparing them to present at professional society meetings and encouraging them to publish research in scientific journals
4. To encourage and train undergraduate students to enter graduate school in a discipline relevant to agricultural sciences

Training and Professional Development for Interns (2016 Cohorts)

	Name of Intern (PP – Poster Presenter, RPW – Research Poster Winner)	Hosts of Interns	Host Institution and Field/Lab Research by Intern
1.	Ms. Katie Asai	Dr. Jeffrey Mitchell, Cropping Systems specialist, University of California, Davis	Conservation Agricultural Systems at UC, West Side Research and Extension Center, Five Points, CA
2	Ms. Jessie Brazil <i>RPW</i>	Dr. Margaret Ellis, Plant Pathologist, California State University, Fresno	Plant Pathogens in water bodies in Fresno
3.	Mr. Mark Castanon <i>RPW</i>	Dr. Andreas Westphal, Nematologist, University of California, Riverside	Plant Parasitic Nematodes at the UC, Kearney Agricultural Research and Extension Center, Parlier, CA
4.	Ms. Carolyn Chase <i>PP</i>	Ms. Jan Minami, Executive Director, Fresno Food Commons, Fresno, CA with assistance from Campus mentor co-PI Dr. John Bushoven	Healthy eating: education and outreach in Fresno
5.	Ms. Crystal Espindola <i>PP</i>	Dr. Jacob Wnger, Entomologist, California State University, Fresno, CA	Conservation of pollinators in Fresno
6.	Ms. Alexis Jackson <i>RPW</i>	Dr. Themis Michailides, Plant Pathologist, University of California, Davis	Aflatoxins in walnuts at the UC, Kearny Agricultural Research and Extension Center, Parlier, CA
7.	Mr. Michael Serrato <i>RPW</i>	Dr. Kent Daane, Entomologist, University of California, Berkeley.	Comparison of thermal performance of two parasitoid insect species at the UC, Kearny Agricultural Research and Extension Center, Parlier, CA
8.	Ms. May Yang <i>RPW</i>	Dr. Kent Daane, Entomologist, University of California, Berkeley	Insect and weed interactions in small-farm South East Asian Cropping at the UC, Kearny Agricultural Research and Extension Center, Parlier, CA

RFW – Research Poster Winner, PP – Poster Presenter

Accomplishments

A collaborative research internship program, as outlined in the proposal, has been established and 16 students were recruited as interns for 2016 & 17 cohorts. In the 2016 cohort, two students worked with researchers at California State University, Fresno (state-funded research institute), 4 students worked with researchers at the University of California (UC) Kearney Agricultural Research and Extension KARE Center, Parlier, CA (Land Grant Institution), 1 student worked with a researcher at the UC West Side Research and Extension WSRE Center, Five Points, CA (Land Grant Institution), and 1 student with Fresno Food Commons (NGO operating with Federal and State Grants). The intern hosts shared their expertise and facilities and helped student develop research hypotheses and conduct field and/or lab research.

Two student interns had taken the graduate record examination (GRE), secured admission for MS programs in California State University, Fresno and University of Oregon, Corvallis, OR and started their grad journey in 2017.

Student Cohort (2016-17) Classification Instructional Programs

Undergraduate	Grad Program Admission	Department
13	2 (2016 only)	Plant Science
1	0	Food Science and Technology
1	0	Industrial Technology
1	0	Viticulture and Enology

Results Dissemination

The results from the students' research activities were (presented at various professional society meetings in 2017. The student research journal (<http://fresnostate.edu/jcast/research/student-research-journal.html>) developed and edited by the PI's has been hosted on the website of the Jordan College of Agricultural Sciences and Technology, California State University, Fresno, CA. Electronic copies of the journal were also disseminated to various departments and research centers in the Jordan College of Agricultural Sciences and Technology at Fresno State

Graduate Program Admission:

1. Jessie Brazil received a research assistantship to join the Master's program at Oregon State University, Corvallis, OR
2. Alexis Jackson received the Jordan Harvey Scholarship/Assistantship to join the Master's program in Plant Science at Fresno State.

Student Cohort (2016-17) Host Institution

2016	2017	Host Institution
4	0	UC KARE Center
1	0	UC WSRE Center
0	3	University of California
1	5	Research Centers, CSU Fresno
1	0	Fresno Food Commons

Training and Professional Development for Interns (2017 Cohorts)

	Name of Intern	Hosts of Interns	Host Institution and Field/Lab Research by Intern
1.	Ms. Diana Camerana	Dr. Katherine Waselkov, Department of Biology, California State University, Fresno	Physiological and molecular aspects of herbicide resistance in hairy fleabane
2	Mr. Aldo Garcia	Dr. Jeffrey Mitchell, Department of Plant Science, University of California, Davis	Soil and water conserving cropping systems
3.	Mr. John Lake	Dr. Themis Michailides, Plant Pathologist, University of California, Davis	Pistachio Diseases
4.	Mr. Huy Le <i>RPW</i>	Dr. Balaji Sethuramasamyraja, Department of Industrial Technology, California State University, Fresno	Modifying commercial/civilian drones to be used for precision agriculture as an unmanned aerial platform using types of different sensors
5.	Mr. Pedro Martinez	Dr. Matthew Fidelibus, Viticulture specialist, Department of Viticulture and Enology, University of California, Davis	Varietal trials in wine grapes
6.	Ms. Vivian Maier	Dr. John Bushoven, Department of Plant Science, California State University, Fresno.	Development of rolled towel assay for evaluation of cotton seedlings infected with Fusarium oxysporum f.sp. vasinfectum
7.	Ms. Briana Quintero	Dr. Margaret Ellis, Department of Plant Science, California State University, Fresno	Evaluation of optimum temperatures of oomycete species and <i>in vitro</i> evaluation of new fungicide chemistries for the management of soil borne plant pathogens
8.	Ms. Christina Sandoval	Dr. Margaret Ellis, Department of Plant Science, California State University, Fresno	Characterization and evaluation of oomycete pathogens of nut crops baited from irrigation reservoirs

