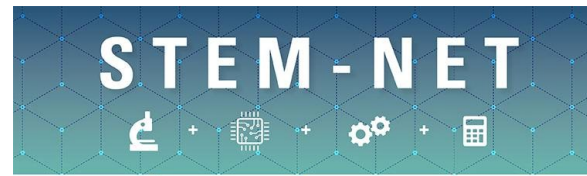


CSU USDA Grantees

Moderated by:
Dr. Frank A. Gomez
Executive Director, STEM-NET
Office of the Chancellor



<https://www2.calstate.edu/impact-of-the-csu/research/stem-net>

Speakers

Carmen Licon & Susan Pheasant, Cal Poly SLO & Fresno State,
Enhancing Dairy Processing Education and Students' Diversity at California State University, Fresno

Zhongzhe Liu, Cal State Bakersfield,
CSUB (Central valley, Student, Usda, Bakersfield) - Agriculture-Related Research, Education, and
Extension

Melawhy Garcia and Natalia Gatdula , Cal State Long Beach,
Harvesting Healthy Habits in Long Beach: A Nutrition and Gardening Intervention to Prevent Chronic
Diseases among Underserved Populations

Lluvia Flores Renteria, San Diego State,
Expanding and Diversifying Careers in Sustainable Food Systems Along the U.S.-Mexico Border



Institute for Food
and Agriculture



MILKULTURE

Enhancing Dairy Processing Education and Students' Diversity at California State University, Fresno

Project Directors:

Dr. Carmen Licon, Director



carmenl@calpoly.edu

Dr. Susan Pheasant, Co-Director



spheasant@csufresno.edu

Collaborators:



CAL POLY

Dairy Products Technology Center



**CALIFORNIA DAIRY
INNOVATION
CENTER**



Leprino Foods

**Something To
Naa and Baa
About ...**



\$43 Billion **Direct Economic Impact of Dairy Food Manufacturers (17% of USA)**

179,903 **Direct Jobs (17% of USA)**

\$9 Billion **Direct Wages (19% of USA)**

\$4 Billion **Total Exports (45% of USA)**

29% **Milk Produced in USA**

ANewCOW: AZ, NM, NV, CA, OR, WA

Something To Moo About ...



\$620 Billion

Overall Economic Impact of the U.S. dairy products industry

3 million

Number of jobs in the U.S. dairy industry

619%

Increase in U.S. exports since 1995

**C
A**

- #1 Milk Producing State
- #2 Cheese Producing State
- #1 Hispanic-Style Cheeses
- #1 Mozzarella Cheese
- #1 Monterey Jack

**O
R**

- Milk = OR's official beverage
- 70% consumed outside state
- #4 most valuable ag commodity

**W
A**

- #10 Milk Producing State
- WA's #4 export
- #2 state milk produced/cow

BUT... Dairy pipelines and support are failing...and that's where we must work together.

Over the past 70 years, there has been a **simultaneous decline** in decentralized food manufacturing and an **increase** in food manufacturing consolidation nationally

Accompanying need to **retain more of the value** of agricultural products within their respective communities

Prolonged vacuum and response for **Technical Expertise**

Efforts to **attract and engage diverse postsecondary students** into the fields of food and agriculture-related science, technology, engineering and mathematics disciplines are greatly needed to help address the lack of a reliable, skilled workforce needed to support the California dairy industry.

Before We Can Grow, We Must Recognize Challenges

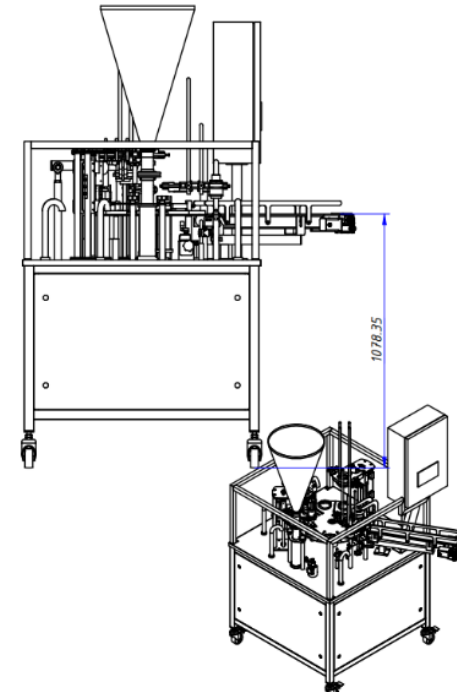
LAUNCHING THE SOLUTION:
A Multi-Partner Approach To Build the Capacity of California State University, Fresno's Jordan College of Agricultural Sciences and Technology.

Project Overview

- **1) EXPAND** the capacity of the dairy pilot-plant with state-of-the-art equipment to strengthen education in the food and dairy processing program;
- **2) ESTABLISH** an institute for ethnic and specialty dairy product development to expand the capacity to conduct research, outreach and training to support regional dairy businesses;
- **3) LEVERAGE** existing dairy industry resources, to provide training and technical assistance to dairy businesses and their workforce; and
- **4) INCREASE** the number and diversity of students entering the dairy industry (science, processing, engineering, technology, food safety) through collaboration with the private sector by establishing student internships.

Capacity Building of Fresno State Creamery/Pilot Plant

- **HOMOGENIZER**
 - Hands-on activities for fluid milk and ice cream mix
- **Fermentation tank**
 - Hands-on activities for fermented and cultured products
- **Cup and seal yogurt filler**
 - Hands-on activities for fermented and cultured products
- **Vertical cheese press**
 - Complete the production process of pressed cheeses



Examples of Student Projects: New Product Development / Innovation



Upcycling:
Cheese rubbed with
coffee



**Product
Development:**
Cottage core ice
cream



Consumer Trends:
High protein ice
cream



Incubator:
Drinkable
yogurt





MILKULTURE

Recognizing the culture for ethnic and specialty dairy product development to attract students, foster innovation, and expand capacity for research, outreach, and training

MILKulture is a multidisciplinary hub throughout the PCC region

It's a virtual space where science, technology, and art can meet industry, academia, and the community to advance consumer awareness, applied research, and education

INTERNSHIPS WITH INDUSTRY PARTNERS

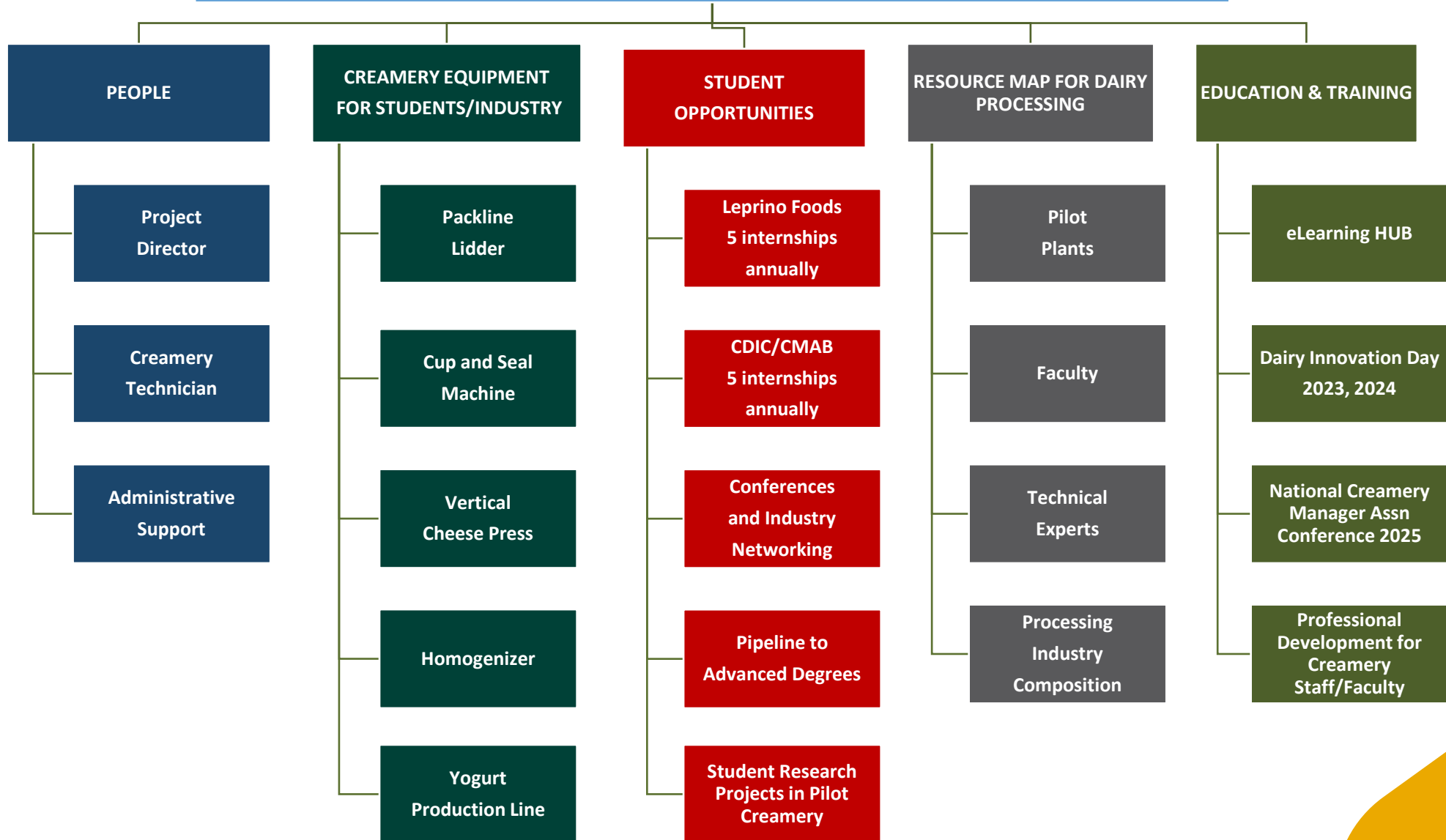


Veronique LaGrange (CDIC), Dr. Susan M. Pheasant (NLGCA Co-PD), Dr. Carmen Licon (NLGCA PD), Garry Germaine (Leprino)

Internships ... some examples

<p>Create a database for yogurt as basis for product development.</p>	<p>Shadow and assist our maintenance manager. Follow and understand the principles involved in the new ice cream facility being constructed.</p>	<p>Assist in collecting video/audio content from PCC-DBII grant winners to be utilized for creating promotional content, educational resources, and showcasing industry innovations.</p>
<p>Learn all aspects of cheese care in the ripening process, how to cut and wrap cheese for retail packaging, how to put together order for shipping, and cheesemaking assistant duties.</p>	<p>Map Hispanic dairy products market in California, identify products (domestic – made in CA, other States, imported) and identify segments for growth and innovation.</p>	<p>Identify and locate online resources for dairy processing education available in the US and Canada, as well as relevant international sites in English or Spanish languages.</p>
<p>Shadow and assist the accounting staff with A/P and A/R. Prepare monthly reporting, quarterly payroll reporting, and budgeting. Streamline credit card payment processing and related integration into our accounting system.</p>	<p>Work with lead pasteurizer and ice cream maker to learn all aspects of developing ice cream: including transporting milk from farm to processing facility, pasteurization, inclusions, batch freezing and hardening of the ice cream.</p>	<p>Immersion into cheesemaking, cheese aging, packaging, and sanitation in our small facility. Work with our team of cheesemakers to learn these valuable skills and hopefully develop an interest in following cheesemaking as a career.</p>

SUMMARY



Lessons Learned ... so far

• Positive

- Multi-pronged focus is working to attract and retain students in dairy processing
- Subawards to industry partners for set amount of internships per year is a win:win
- MILKulture is proving to be a great interdisciplinary vehicle to meld the cultures of people with the cultures of dairy ... along with helping students “see” a place for themselves

• Challenges

- Especially post-pandemic, still takes an incredible amount of time to order, design, deliver, install equipment ... let alone develop the supporting lab manuals tailored to the new equipment and industry outreach to attract steady usage

Next Steps / Long Term Plans

1. **Formalize** internship opportunities on a longer-term basis with more companies (already have two in the pipeline)
2. **Encourage** Fresno State to hire full-time dairy processing faculty and full-time technician at Fresno State to maintain/expand what has been achieved
3. **Involve** students in continued research/product innovation projects and competitions
4. **Strengthen** HEI networks to expand available post-baccalaureate pathways
5. **Expand** the MILKulture offerings

Thank you, USDA NIFA!!!

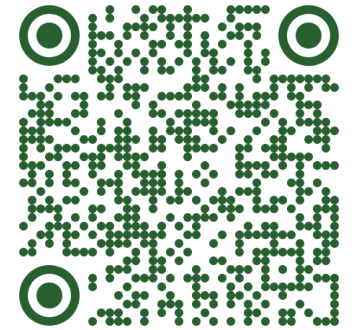
Contact Information:

Dr. Carmen Licon, ✉ carmenl@calpoly.edu 805.756.6101

Dr. Susan M. Pheasant, ✉ spheasant@csufresno.edu 509.421.0358

California State University, Fresno

Website : [MILKulture](https://milkulture.com) | [Pacific Coast Coalition \(dairypcc.net\)](https://pacificcoastcoalition.com)





CALIFORNIA STATE UNIVERSITY
BAKERSFIELD

CSUB (Central valley, Student, Usda, Bakersfield) - Agriculture-Related Research, Education, and Extension

Zhongzhe Liu, Ph.D. - California State University, Bakersfield

Collaborators: Antje Lauer (Professor of Biology), Isolde Francis (Associate Professor of Biology),

Sarah Forester (Associate Professor of Chemistry), Luis Cabrales-Arriaga (Professor of Engineering),

Ehsan Reihani (Associate Professor of Electrical/Computer Engineering), Nyakundi Michieka (Associate Professor of Economics)

Zhongzhe Liu, Ph.D., Associate Professor

California State University-Bakersfield, Department of Physics and Engineering

zliu3@csub.edu

Project Overview

USDA

SUPERSTAR:

Sustainability Undergraduate Program for Extension and Research of Science and Technology in Agricultural Region

Central Valley

- The economy of the Central Valley is based primarily on agriculture and petroleum.
- Agriculture is the major contributor to the Valley's economy and is also the cultural cornerstone of the Valley.
- The Valley is one of the world's most productive agricultural regions and many Valley's counties (e.g., Kern) are at the top of the nation's agriculture producing counties.
- The Valley is home to the largest concentration of dairies in California.
- The Valley has abundant forest resources (e.g., Sequoia National Forest, Sierra National Forest).



Project Overview

USDA

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Sustainability Undergraduate Program for Extension and Research of Science and Technology in Agricultural Region

Sudent (Shortening the Gap between Education Background and Workforce Needs)

- Kern County is characterized by low educational attainment with only 16.1% of persons aged 25 years and over holding a Bachelor's degree or higher compared to the 33.3% and 31.5% average for California and the nation, respectively.
- Low educational attainment is a factor leading to the high unemployment rate of Kern County (currently 18.6% and consistently 50% higher than the California average over the last half century).
- The vast majority of CSUB's students are from this region and 68% are from underrepresented groups, with Hispanics (63%) being the largest group, and African Americans making up another 5%.
- The lack of a well-trained FANH (food, agriculture, natural resources and human sciences) and STEM (science, technology, engineering, and math) workforce is an impediment for regional industries and economy.

Project Overview

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Usda

- A 4-year project covers 4 USDA AFRI Program Priority Areas, including plant health and production, food nutrition and health, bioenergy/natural resources/environment, and agriculture economics.
- The project will achieve the AFRI EWD program goal of “Developing Pathways” (i.e., supporting the development of non-formal education activities that cultivate interest and build public confidence in the safe and enhanced use of technology in food and agricultural sciences).
- The long-term goal of this project is to enrich experiential learning and develop regional workforce to address the challenges for the sustainability of agricultural system (e.g., crop health, grape quality, alternative irrigation water, wildfire, Valley fever, cow manure management, renewable energy demand, water-energy nexus) in the nation’s leading agriculture region, California’s Central Valley.
- As the host institution, CSUB collaborates with nearby minority-serving community colleges, Bakersfield College (BC) and Taft College (TC), to recruit and train STEM and FANH program undergraduate students, women, underrepresented/economically disadvantaged minorities, veterans, and first-generation college students to guarantee diversity and equality.

Project Overview

USDA

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Bakersfield, Kern County, CA

- Located in the heart of California's agricultural region, Kern County's agricultural commodities have an annual gross value of over \$7.7 billion (2022).
- The top five commodities for 2022 are Grapes, Citrus, Milk, Almonds, and Pistachios, which make up more than \$5 Billion (66%) of the Total Value.
- CSU-Bakersfield is the only comprehensive four-year university within a radius of 100 miles serving this agriculture-rich region.
- Regional government and industry partners provide students with experiential learning opportunities related to agriculture.

Activities

USDA

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Sustainability Undergraduate Program for Extension and
Research of Science and Technology in Agricultural Region

- **Agriculture-Related Research**
- **Agriculture-Related Education**
- **Agriculture-Related Extension**

Activities

USDA

SUPERSTAR:

Sustainability Undergraduate Program for Extension and
Research of Science and Technology in Agricultural Region

- **Agriculture-Related Research**
- **Agriculture-Related Education**
- **Agriculture-Related Extension**

Results-Agriculture-Related Research

USDA
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Research of Science and Technology in Agricultural Region**

Biocontrol of important local agricultural diseases

**Carrot Cavity Spot
and
Southern Blight of Tomato**

Isolde Francis
Department of Biology
California State University Bakersfield



Coccidioides spp. in abandoned farmland

Dr. Antje Lauer, Department of Biology, CSUB



**Geographic Range of Valley Fever
Potential**



■ Potential Range? ■ Endemic

CDC Website: <http://www.cdc.gov/fungal/pdf/valley-fever-expanding-cocci-508c.pdf>; Edwards PQ, Palmer CE. *Dis Chest.* 1957;31:35-60.



Results-Agriculture-Related Research

CSUB-Agriculture-Related Research, Education, and Extension

**USDA
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Research of Science and Technology in Agricultural Region**



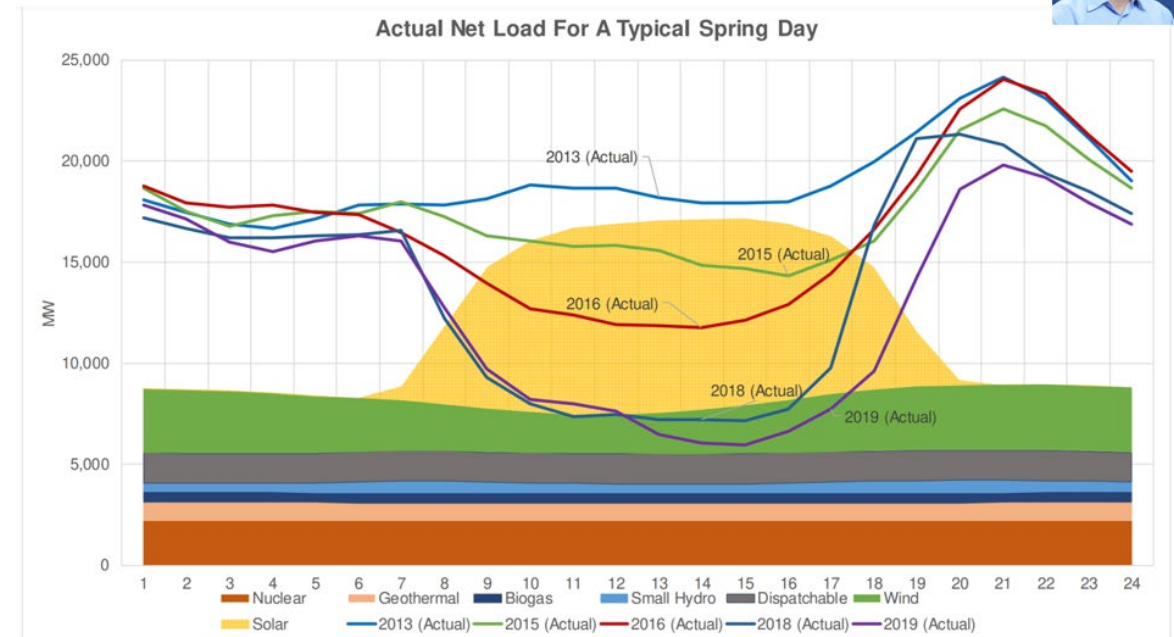
CSU Bakersfield

Electrochemical oxidation of
produced water in Kern County.



Luis Cabrales
Physics and Engineering

Optimization of Renewable Energy System for
Agricultural Farms



Results-Agriculture-Related Research

Production of Hazardous-Woody-Fuel-Derived Soil Amendment

Faculty Mentor: Zhongzhe Liu, Ph.D.

California faces the challenge of destructive wildfires every year due to the poor forest management as well as the global warming effect.

Tree trimming and man-made firebreak (fuel break) to reduce hazardous woody fuel are efficient methods to slow or stop the progress of wildfires but generate lots of woody biomass. Hence, sustainable methods for handling hazardous woody fuel biomass are highly needed.



CSUB-Agriculture-Related Research, Education, and Extension

USDA

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Sustainability Undergraduate Program for Extension and Research of Science and Technology in Agricultural Region



Urban Impacts on Kern County's Agriculture

Nyakundi Michieka Ph.D.

Associate Professor of Economics

Director, Center for Economic Education and Research

California State University, Bakersfield

Results-Agriculture-Related Research

**USDA
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Sustainability Undergraduate Program for Extension and
Research of Science and Technology in Agricultural Region**



Food Science and Nutrition Lab

Dr. Sarah C. Forester



Resistance of environmental fungi to azole drugs that are used to treat Valley fever

Antje Lauer, PhD, California State University Bakersfield, Department of Biology, 9001 Stockdale Highway, Bakersfield, CA 93311,

Email: alauer@csub.edu



Aims of the Project:

1. Isolate environmental fungi from soil and dust
2. Identify fungal isolates via DNA extraction and PCR
3. Perform Bioassays with various azole drugs
4. Increase awareness of antifungal resistance to drugs to treat Valley fever and other fungal diseases

Activities


USDA

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Research of Science and Technology in Agricultural Region


- **Agriculture-Related Research**
- **Agriculture-Related Education**
- **Agriculture-Related Extension**

Results-Agriculture-Related Education

ENGR 4620 

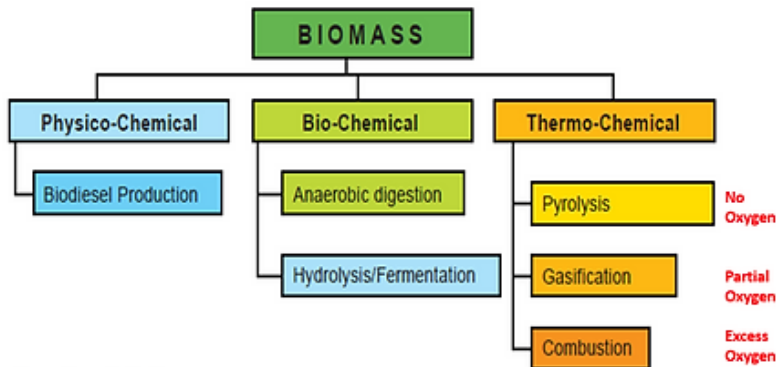
Renewable Energy Production

Instructor: Dr. Zhongzhe Liu



CALIFORNIA STATE UNIVERSITY
BAKERSFIELD
College of Natural Sciences,
Mathematics and Engineering

Biomass Conversion Methods



Source: Capareda, Sergio

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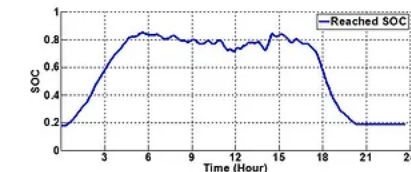
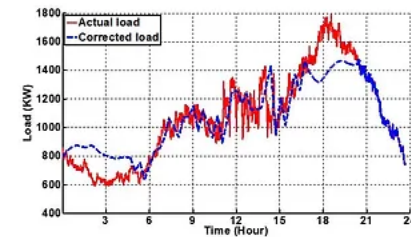
ECE 4370
Power System Analysis

Introduction

Renewable energy integration



Peak shaving and smoothing of load curve



Results-Agriculture-Related Education

BIOL 4350



Environmental Microbiology

Instructor: Dr. Antje Lauer



Detection of *Coccidioides*, the Valley fever fungus, in soil samples using molecular biological tools

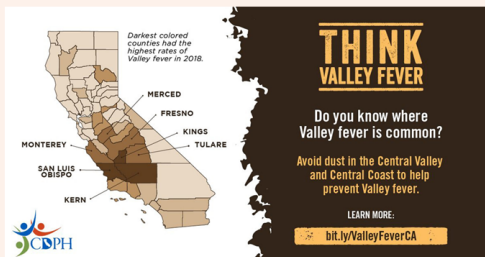


Figure 1. Valley fever is common in the Central Valley of California, (CDPH)

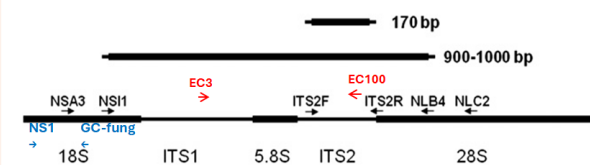
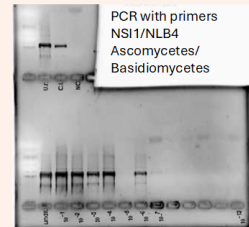


Figure 2. Location of primer pairs that can be used to amplify fragments of the fungal ribosomal gene.

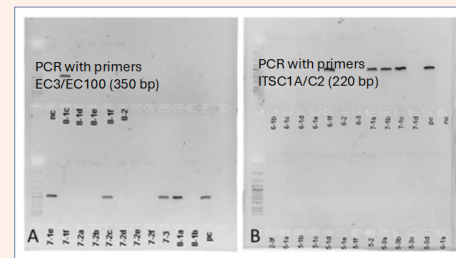


Figure 3. Using a nested PCR approach to amplify a 900 bp fragment of the ribosomal gene of fungi belonging to the Ascomycetes and Basidiomycetes (top) followed by a second PCR with diagnostic primer pairs to detect *Coccidioides* spp. (bottom)

USDA SUPERSTAR: Sustainability Undergraduate Program for Extension and Research of Science and Technology in Agricultural Region



CSU Bakersfield

ENGR 4410: Environmental Engineering Treatment of Produced water

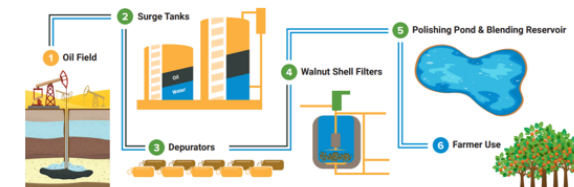
Dr. Luis Cabrales



CSU Bakersfield

How is the water treated for irrigation:

- Separate suspended oil. Induced air flotation.
- Walnut shell filters are used to absorb some of remaining oil.
- For steam generation: reduce the hardness by ion exchange.
- For further reduction of TDS: Reverse osmosis. Expensive.



Results-Agriculture-Related Education

Local *Streptomyces* isolates
as potential biocontrol agents
of agriculturally important diseases

BIOL 3410 - Microbiology



Biocontrol

A sustainable alternative to harsh and harmful chemicals

The use of living organisms to combat pathogens



CSUB-Agriculture-Related Research, Education, and Extension

USDA

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Sustainability **U**ndergraduate **P**rogram for **E**xtension and
Research of **S**cience and **T**echnology in **A**gricultural **R**egion

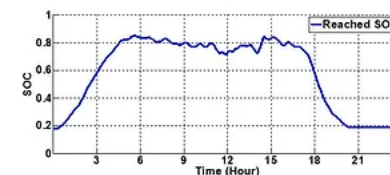
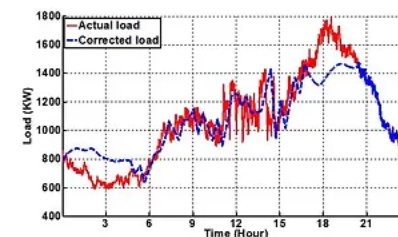
ECE 4370
Power System Analysis

Introduction

Renewable energy integration



Peak shaving and smoothing of load curve



Activities

USDA

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Sustainability Undergraduate Program for Extension and
Research of Science and Technology in Agricultural Region

- **Agriculture-Related Research**
- **Agriculture-Related Education**
- **Agriculture-Related Extension**



CSUB-Agriculture-Related Research, Education, and Extension

Results-Agriculture-Related Extension

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University
of California
Cooperative
Extension

Kern County

United States Department of Agriculture
Natural Resources Conservation Service

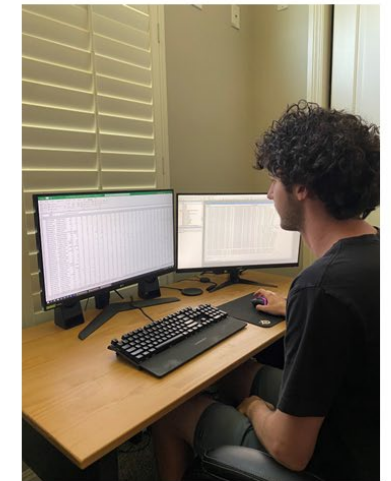


Results-Agriculture-Related Extension

USDA

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Sustainability Undergraduate Program for Extension and Research of Science and Technology in Agricultural Region



Fernando (Biology, BC)

Marlette (Biology, CSUB)

Amritpal (Biochemistry, CSUB)

Drake (Comp Eng, Taft)
Abubaker (Comp Sci, BC)

Zane (Comp Eng, Taft)

Results-Agriculture-Related Extension

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Research of Science and Technology in Agricultural Region**



Kylee (Biology, CSUB)



Peyton (Biology, Taft)



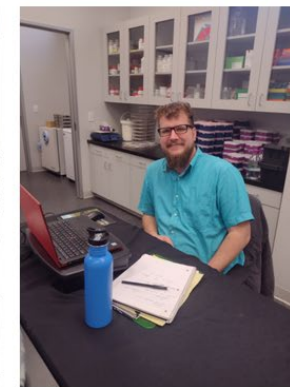
Harlan (Comp Sci, BC)



Geno (Comp Sci, CSUB)



Katie (Biochemistry, CSUB)



Tristan (Biology, Taft)



Todd (Comp Eng, CSUB)



Fernando and Marissa
(Biology, CSUB)

Results-Agriculture-Related Extension

USDA
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Research of Science and Technology in Agricultural Region



Kayla, Calvin and Serina (Engineering, CSUB)

Hana and Marco (Engineering, CSUB)

Summary

USDA

SUPERSTAR:

**Sustainability Undergraduate Program for Extension and
Research of Science and Technology in Agricultural Region**

- **The Central Valley is a pioneer and global leader in the agricultural industry but also faces many challenges related to sustainability.**
- **CSUB, community colleges, and regional government and industry partners provide students with experiential learning opportunities related to agriculture.**
- **Many USDA programs that cover research, education, and extension are a superb catalyst for training the next generation of workforce.**

Questions?

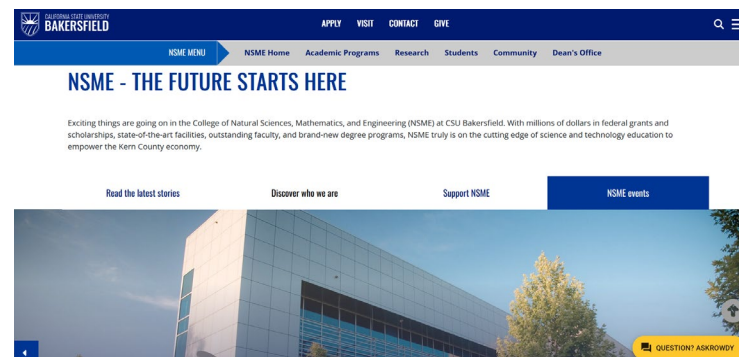
Contact Information:

Name: Zhongzhe Liu, Ph.D.

Campus/Department: CSUB-Dept of PHEN

Website : <https://zliu006.wixsite.com/csub-usda-superstar>

Email: zliu3@csub.edu



Follow us @csubnsme



CALIFORNIA STATE UNIVERSITY
LONG BEACH



LONG BEACH STATE UNIVERSITY
**CENTER FOR LATINO
COMMUNITY HEALTH**
EVALUATION & LEADERSHIP TRAINING

A background image showing a variety of fresh vegetables, including purple eggplants, green leafy vegetables, and red tomatoes, arranged in a basket.

Harvesting Healthy Habits in Long Beach: A Nutrition and Gardening Intervention to Prevent Chronic Diseases among Underserved Populations

*California State University Long Beach
Center for Latino Community Health, Evaluation, and Leadership Training*

Melawhy Garcia, MPH, PhD
Principal Investigator
Associate Professor, Department of Health Science
Email: melawhy.garcia@csulb.edu

Natalia Gatdula, MPH,
Co-Investigator
Lecturer, Department of Health Science
Email: natalia.gatdula@csulb.edu

Project Overview

Funding: United States Department of Agriculture - National Institutes of Food and Agriculture

Funding Period: Jan. 2023 – 2026

Collaborator: Puente Latino Association

Purpose: Provide undergraduate and graduate students with a **comprehensive research training experience** that includes hands-on **experiential learning** while **developing and implementing an intervention** that aims to **improve eating patterns** and healthy lifestyles to **reduce the risk for chronic diseases** among **underserved children in grades 3 to 5** and their families.



CALIFORNIA STATE UNIVERSITY
LONG BEACH



LONG BEACH STATE UNIVERSITY
**CENTER FOR LATINO
COMMUNITY HEALTH**
EVALUATION & LEADERSHIP TRAINING

Project Goals

EDUCATION

- **Train and mentor 6 graduate and 12 undergraduate** students in food and nutrition majors.
- **Increase the pool of qualified health and nutrition professionals** to enter the workforce to prevent and address chronic conditions among underserved communities.

RESEARCH

- **Reach 174 children** in grades 3 to 5 and their parent/caregiver.
- **Evaluate the effectiveness** of the Harvesting Healthy Habits **intervention** in increasing healthy lifestyles among underserved.

EXTENSION

- **Engage** community and university **stakeholders** in the design, testing, and implementation of the intervention and the design of student training activities to ensure relevance to the priority populations.
- **Strengthen underserved communities** through engagement of research participant's families in Harvesting Healthy Habits intervention activities.
- **Improve food security and nutritional health outcomes** for underserved families in the Harvesting Healthy Habits intervention.



Student Experiential Learning

Eligibility Criteria

- **Undergraduates:** CSULB junior or senior standing student pursuing a degree in health science, nutrition, and kinesiology or another health-related major; 3.0 GPA
- **Graduates:** CSULB student pursuing a master's degree in public health, kinesiology, nutrition, or other health related field; 3.2 GPA; 6 units;
- 15 hours per week for 12 months;
- Reliable transportation
- Available evenings and weekends



Student Activities

- **Research training** with emphasis in nutrition and chronic disease, community-based participatory research, and research ethics;
- **Experiential learning** with opportunity to develop and/or implement an intervention to improve eating habits and healthy lifestyles;
- **Mentorship** from faculty and staff;
- **Professional and leadership development;**
- **Opportunity to travel** to a conference;
- **Complete evaluation** surveys.



Research Study Design & Procedures

Study Design:

- One-group non-experimental design with repeated measures (pre, post, 3 month follow-up).
- Child-focused, family-based intervention to promote changes at the individual and interpersonal (parents/caregivers) levels through interactive educational sessions.

Figure 1. Theoretical Model of Change based on Social Cognitive Theory

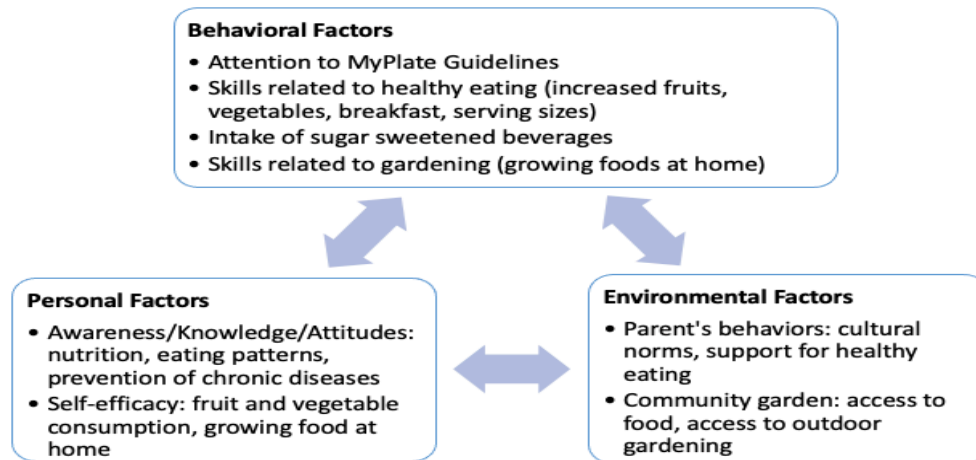
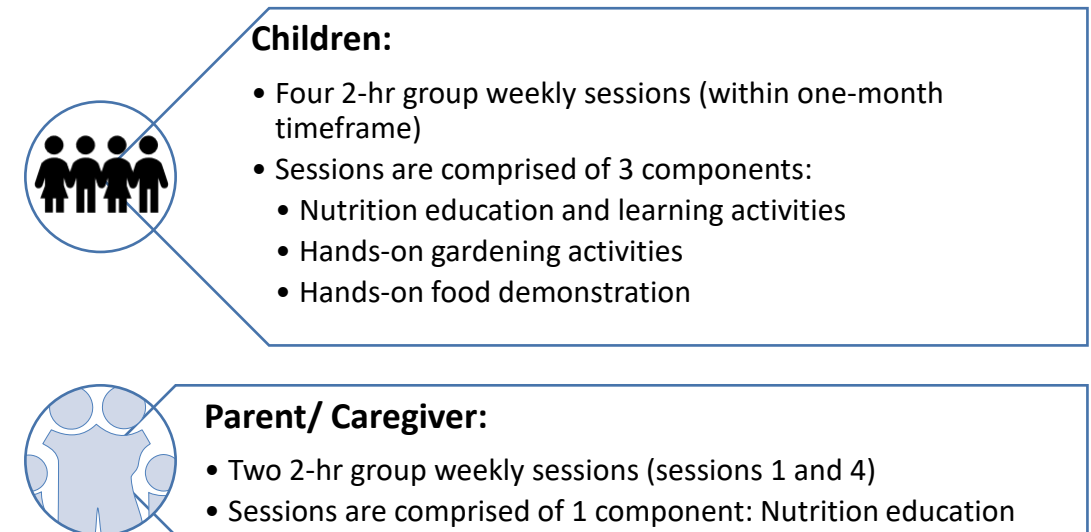


Figure 2. Intervention Components



Child Nutrition Education Curriculum Topics

Session 1

- NE: Importance of nutrition and its relation to chronic disease prevention
- FD: Happy crackers

Session 2

- NE: Importance of eating breakfast
- FD: yogurt parfait

Session 3

- NE: Fruits and vegetables and their health benefits
- FD: salad with vinaigrette

Session 4

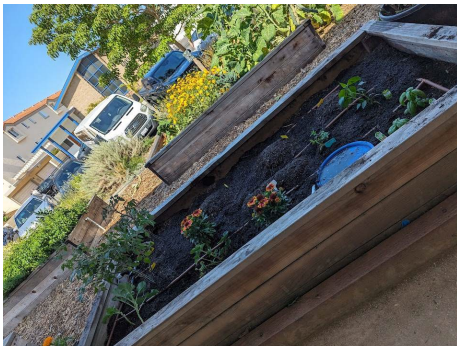
- NE: Added sugar and sugary beverages
- FD: fruit and vegetable smoothie



Child Gardening Curriculum Topics

Session 1

- Seeds, germination, what plants need to grow



Session 2

- Plant life cycle



Session 3

- Parts of a plant we eat



Session 4

- Growing in small spaces, taking care of plants



Adult Curriculum Topics

Session 1

- Digestion and its role in health
- Macro and micronutrients
- MyPlate and food groups
- Nutrition label
- Portion sizes
- Importance of nutrition and its relation to chronic disease prevention



Session 4

- Parental influence and home environment
- Grocery shopping tips
- Meal planning
- Mindful and intuitive eating



Preliminary Results

- Reached 39 research participants (27% of goal) and 95 community participants (22% of goal)
- Knowledge scores show positive trend, with increasing scores from pre-to-post.
- Intention – scale of 1-to-7 strongly disagree to strongly agree
 - Intention to eat breakfast everyday show a positive trend from pre-to-post.
 - Intention to eat 5 servings of fruits and vegetables per day remained the same from pre-to-post with 5.5 out of 7.
 - Intention to drink less sugary beverages remained the same with 5.9 out of 7.

Child Demographic Characteristics (N = 39)	
Characteristic	N (%)
Gender	
Boy	21 (53.8%)
Girl	18 (46.2%)
Grade	
3 rd	15 (38.5%)
4 th	15 (38.5%)
5 th	9 (23.1%)
Avg. Age	9.15



Lessons Learned

- Peer influence plays a role in children's willingness to try new foods (fruits and vegetables) – evident through food demo.
- Children enjoy planting their own seeds and learning about the food we grow.
- Outside commitments (e.g., parent work schedule, child extra curricular activities) are barriers to the ability to commit to all four sessions.

Next Steps

- Continue with implementation to reach 144 research participants by January 2026
- Analyze 3-month follow up data to assess sustained changes



Contact Information

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Co-Investigator

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<https://www.csulb.edu/latinohealth/harvesting-healthy-habits>



[csulblatinocenter](#)

Questions?



CALIFORNIA STATE UNIVERSITY
LONG BEACH



LONG BEACH STATE UNIVERSITY
**CENTER FOR LATINO
COMMUNITY HEALTH**
EVALUATION & LEADERSHIP TRAINING

EXPANDING AND DIVERSIFYING CAREERS IN SUSTAINABLE FOOD SYSTEMS ALONG THE US-MEXICO BORDER



Dr. Lluvia Flores Renteria

Who we are

		Grand Total	
		Enroll	% Ethnicity
San Diego Campus	Not URM (CO)		
	Asian	2,652	7.7%
	Pacific Islander, Native Haw..	73	0.2%
	Filipino	1,849	5.4%
	Multiple Ethnicities	2,424	7.1%
	White	11,715	34.2%
	Other, Not Stated	1,231	3.6%
	International	1,362	4.0%
	Total	21,306	62.1%
	URM (CO)		
Native American	78	0.2%	
African American	1,295	3.8%	
Hispanic, Latino	11,622	33.9%	
Total	12,995	37.9%	
Total	34,301	100.0%	





About Us

Who We Are

An interdisciplinary team of SDSU faculty (from anthropology, biology, business, chemistry, food and nutrition sciences, food studies, geography, and urban studies) working in collaboration with USDA agencies, universities in Mexico (Baja and Oaxaca), and local partners, including farmers, nonprofits, community colleges, and high schools

Our Goals

What we hope to accomplish



01

To recruit, support, and train future food, agriculture, and natural resource scientists and leaders

02

To diversify the workforce

03

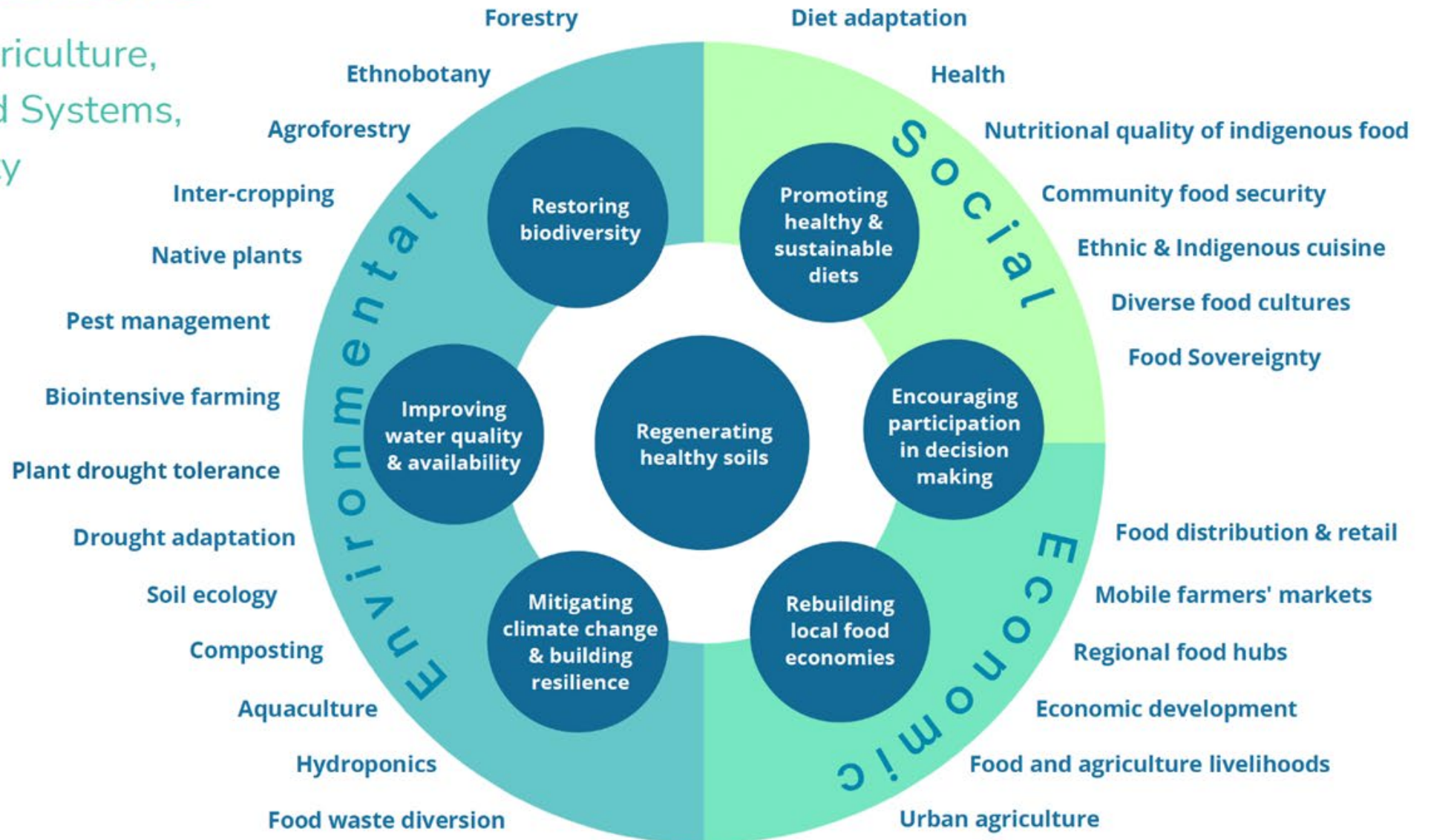
To increase access to successful careers in food, agriculture and natural resources

04

To help create more sustainable and equitable food futures

Our Focus

Regenerative Agriculture,
Sustainable Food Systems,
and Food Security



Our Activities

How we will meet our goals



01

Experiential Learning

Provide students with meaningful educational experiences through innovative classes, research, and internships that develop skills needed for successful careers in food and agriculture

02

Student Support

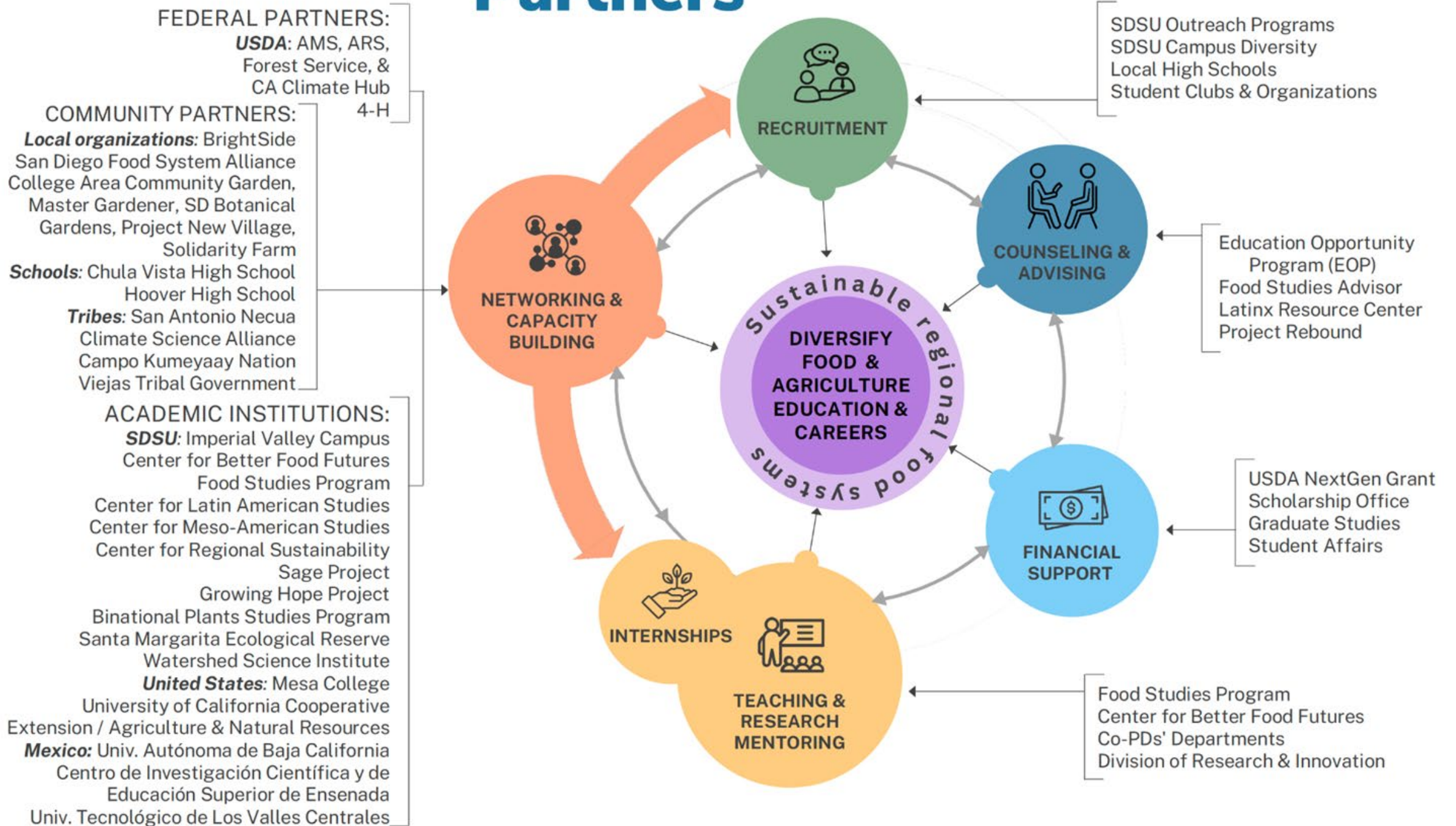
To recruit and support students from historically excluded communities with scholarships and mentoring and create a pipeline between high schools, community colleges, and SDSU's undergraduate and graduate programs

03

Community Engagement

To engage students with community partners in sharing and co-producing knowledge through collaborative and interdisciplinary research

Partners



High School collaboration

Creating pathways for FAHN



>100 High school students reached & 45 toured SDSU

Independent research linked to classes

Fall 23 + Spring 24

>200 students taken these classes
16 students recruited for research
experiences

GEOG 360
GEOG 499

Human Dimensions
of Climate Change

+

Agroforestry &
Climate Change
Adaptation

Dr. Amy Quandt
Geography



GEOG 576
GEOG 499

Advanced
Watershed Analysis

+

Mitigating water use
and heat stress in IV

Dr. Trent Biggs
Geography

GEOG 590

GEOG 499/798

Community-Based
Geographic
Research

+

Urban Agriculture
and Environmental
Justice

Dr. Pascale Marcelli
Geography



Team-taught interdisciplinary classes

Spring 2024

45 students

Taking the CAL400 class at SDSU provided me with an informed overview on the influence of government institutions in implementing transformational frameworks to incentivize moving the needle of global food systems.



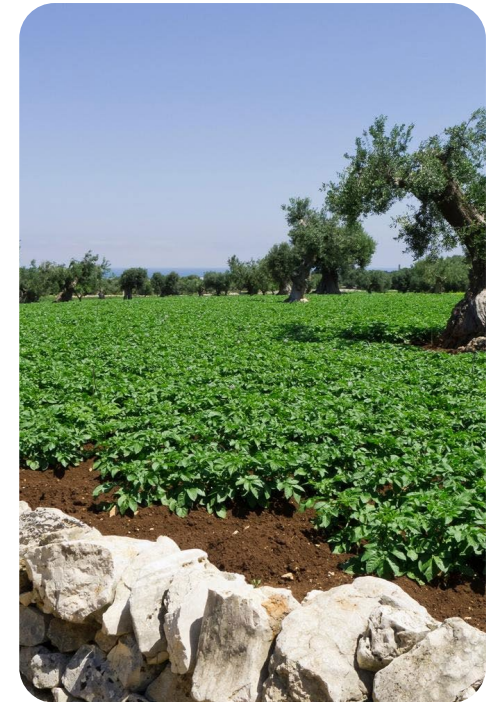
CAL 400

Transnational
Approaches to Food
Futures

Pascale Joassart-Marcelli

ENV S 496

Sustainable
Agriculture
Stephen Welter



Faculty-led summer internships

International



California & Baja California

Careers in Natural Resources

Drs. Lluvia Flores-Renteria & David Lipson

Biology

9 students



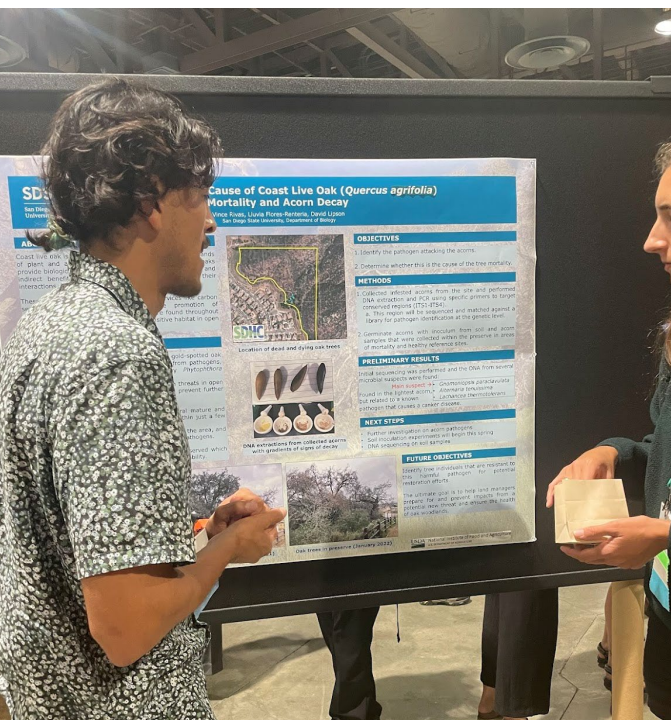
Oaxaca

Indigenous Food Practices

Dr. Ramona Pérez

Anthropology

8 students



Faculty-led summer internships

California



San Diego
Urban Agriculture
Drs. John Love, Chemistry,
& Changqi Liu, Food Science
10 students



Brightside Produce SD
Food security
Dr. Iana Castro
Food Science
2 students

USDA summer internships



United States Department of Agriculture
National Institute of Food and Agriculture



Albany, CA

USDA

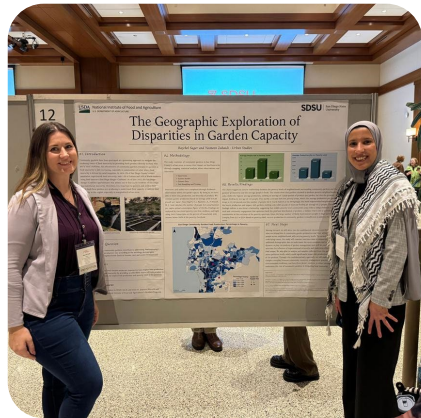
Dr. Changqi Liu

Food Science

2 students



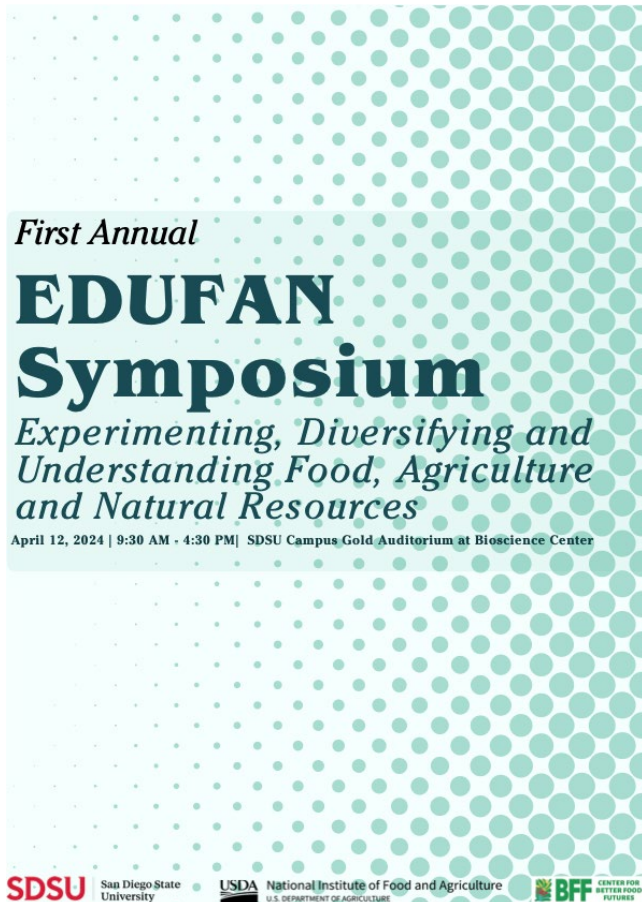
Research



Undergraduate and graduate students involved in our internships, classes, and independent study learn valuable skills by working on research projects, presenting at conferences, and preparing manuscripts for publications with faculty mentors.

EDUFAN Symposium: Every year

First Annual
EDUFAN Symposium
Experimenting, Diversifying and Understanding Food, Agriculture and Natural Resources
April 12, 2024 | 9:30 AM - 4:30 PM | SDSU Campus Gold Auditorium at Bioscience Center



SDSU San Diego State University
USDA National Institute of Food and Agriculture
BFF CENTER FOR BETTER FOOD FUTURES



- 21 SDSU students and four Mesa College students presented



- Eight representatives from partner organizations participated in the event



Colloquium Series

Featuring research, local partners, and career events

Better Food Futures Colloquium Series
Edible Insect Symposium
 February 22 • 1:00-2:30 PM • OP 203

Chief Joseph Yoon
Keynote presentation
 Kitchen Metamorphosis

Brooklyn Bugs
 Feed Your Curiosity

Insects on the plate:
 From niche to nutrition

Dr. Paula Peter
 Exploring appetite: Fostering willingness to eat insect-based food in Western societies via virtual reality

USDA
 The flavorful world of edible insects and their aromatic building blocks

Ms. Tebe Chepkoror Bati
 Reviving tradition: The potential of edible insect consumption in Africa

BFF
 BETTER FOOD FUTURES
 SDSU

SDSU
 National Institute of Food and Agriculture
 Graduate Student Success Fee

Better Food Futures Colloquium Series
Healing Grounds
 Climate, Justice, and the Deep Roots of Regenerative Farming
 by Liz Carlisle

Friday
 November 17
 3:30pm
 AL 101
 Reception to follow

Professor Carlisle will be sharing insights from her book, *Healing Grounds: Climate, Justice, and the Deep Roots of Regenerative Farming*. In *Healing Grounds*, she tells the stories of Indigenous, Black, Latinx, and Asian American farmers who are reviving their ancestors' methods of growing food—techniques long suppressed by the industrial food system. These farmers are restoring native prairies, nurturing beneficial fungi, and enriching soil health. While feeding their communities and revitalizing cultural ties to land, they are steadily stitching ecosystems back together and repairing the natural carbon cycle. This, Carlisle shows, is the true regenerative agriculture—not merely a set of technical tricks for storing CO2 in the ground, but a holistic approach that values diversity in both plants and people.

HEALING GROUNDS
 Liz Carlisle

Liz Carlisle is an Associate Professor in the Environmental Studies Program at UC Santa Barbara, where she teaches courses on food and farming. Born and raised in Montana, she got hooked on agriculture while working as an aide to organic farmer and U.S. Senator Jon Tester, which led to a decade of research and writing collaborations with farmers in her home state. She has written three books about regenerative farming and agroecology: *Lenit! Underground* (2015), *Grain by Grain* (2018), with co-author Bob Quinn, and most recently, *Healing Grounds: Climate, Justice, and the Deep Roots of Regenerative Farming* (2022). She is also a frequent contributor to both academic journals and popular media outlets, focusing on food and farm policy, incentivizing soil health practices, and supporting new entry farmers. She holds a Ph.D. in Geography from UC Berkeley, and a B.A. in Folklore and Mythology from Harvard University. Prior to her career as a writer and academic, she spent several years touring rural America as a country singer.

USDA National Institute of Food and Agriculture
Geography Awareness Week 2023
SDSU National Institute of Food and Agriculture
SDSU GEOGRAPHY
Center for Regional Sustainability
BFF BETTER FOOD FUTURES
 SDSU

BETTER FOOD FUTURE COLLOQUIUM SERIES
IMAGINING A FOOD SYSTEM THAT BELONGS TO ALL OF US
 FRIDAY APRIL 21
 3:30 PM
 SH 316

San Diego County Food Vision 2030 is a shared vision, plan, and movement for transforming our region's food system over the next ten years. With three goals, ten objectives, and detailed strategies to inform policy, program, planning, and investment opportunities, Food Vision 2030 serves as a call to action and political compass as we work together toward a more equitable and resilient future for all. Three thousand residents of San Diego County—a majority of whom have been deeply impacted by inequities—voiced their needs and aspirations for the food system and provided essential input on the Vision.

Please join *Sona Desai* to learn more about the San Diego County Food Vision 2030 planning process and how we can work together to imagine a food system that belongs to all of us.

Speaker's *Bibi Sona Desai* has been working to advance sustainable and equitable food systems for more than 20 years. As Co-Executive Director of the San Diego Food System Alliance, Sona provides strategic and management support for the organization, strengthens support services for small-scale sustainable food producers and fishermen in the region, provides consulting services to advance economic development in the food system and leads diversity, equity and inclusion efforts.

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Colloquium
FRIDAY
 October 28, 2022
 3:30 PM
 SH 119

Hunger, Survivance, and Imaginative Futures:
 A Racial Analysis of the "Right to Food"

Dr. Adam Pine
 Associate Professor of Geography
 University of Minnesota, Duluth

For the last half century, the "right to food" (RTF) framework has been promoted by the United Nations as an important policy framework to end hunger. However, the RTF assumes that states view all of their population as worthy and deserving of food security. Given the legacy of racism in the United States, racialized minorities have not been viewed by the state as deserving of food security. Rather than work to support food security for all, the state instead has used its power to create two food systems, separate and unequal. In this talk, Dr. Pine explores how the U.S. government has used agricultural, food and nutrition, and urban planning policies to deny food to communities of color. Grounded in these historical patterns, he defines equity principles to guide work on the racialized food system and discusses six reparative public policies that will significantly decrease hunger and build political power in racialized communities.

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 SDSU

THE CENTER FOR BETTER FOOD FUTURES PRESENTS:
Food and Agriculture Career Event
 April 25, 2024
 4:00 to 6:30pm

This event presents an opportunity for students considering careers in these industries to hear from local representatives of various USDA agencies about careers and internships. We will also discuss graduate school options.

SDSU career services will participate in this event and provide students with tips and guidance regarding how to prepare your resume and apply for jobs in food and agriculture and give an overview of the USAJobs system.

About 10 percent of jobs in San Diego County are in food and agriculture industries - a strong and growing sector of our local economy. Don't miss out on this fantastic chance to kick-start your professional journey!

Speakers

- Giulie Childers**, Office in Charge, USDA Animal and Plant Health Inspection Service, San Diego
- Imana Ewell**, Outreach, Recruitment, and Workforce Diversity Team, USDA Forest Service, Pacific Southwest Regional Office
- Joselyn Gauthier**, Equal Employment Specialist with Region 5 and Pacific Southwest Research Station, USDA Forest Service
- Todd Skaggs**, Supervisory Research Hydrologist, USDA Agricultural Research Service, Riverside, CA
- Lorena Suarez Jr.**, Career Management Lead, SDSU Career Services

Why attend?

- Explore diverse career options in food and agriculture
- Meet from USDA representatives from various agencies
- Get tips on applying for jobs on USAJobs
- Gain your professional network

Examples of USDA Careers

- Scientists**, such as researchers, veterinarians, ecologists, and plant breeders
- Engineers**, who are in charge of tasks like controlling the amount of irrigation water or mechanical equipment used
- Administrators**, who manage the day-to-day operations of USDA main offices, state offices, and research laboratories
- Pharmacists and veterinarians**, who protect the people and animals in USDA
- Information technology experts**, who help USDA computer systems
- Analysts**, who help with processing, analyzing, and interpreting data for the agricultural products
- Managers**, who provide quality information that is needed to run the department
- Planners**, who help with USDA business planning
- Communications experts**, who help the public learn about USDA
- More than 100 professions** for people with varying disciplines such as biology, geology, chemistry, food science, business, sustainability, etc.

This event is proudly supported by:
SDSU National Institute of Food and Agriculture
BFF BETTER FOOD FUTURES
USDA National Institute of Food and Agriculture

PROMOTE AGROECOLOGY AND SUPPORT ALL FARMERS AND FISHERIES IN THE TRANSITION TOWARDS ECOSYSTEM-FRIENDLY PRODUCTION

THE CULTURAL ROOTS OF SLOW FOOD
 A Lecture by **Iliana Tabusso Marçon**

March 5, 2024, 2:00-3:15pm
 Event will be held in Peterson Gym 242

This presentation will address aspects of her latest book, *The Cultural Roots of Slow Food: Peasants, Partisans, and the Landscape of Italian Resistance* (Cornell Books, 2022), and the significance and transformative power of grassroots movements related to traditional food cultures and their relationships with landscapes and farming.

The Cultural Roots of Slow Food focuses on food justice literature and documentary films, and argues that contemporary forms of environmental activism, as they are rooted in local food and sustainable farming, are built on Italian peasant culture and its contributions to the Resistance movement during World War II.

Iliana Tabusso Marçon is a teaching professor at Arizona State University. Before joining ASU in 2022, she taught Italian language, culture and literature at Miami University in Oxford, Ohio, where she was an important scholar for the Slow Food Foundation's research focus on Farming and Food Culture, Food Justice and food activism, Environmental Humanities and Environmental Cultural Studies. Her articles on Slow Food and Terra Madre, with an interview to Slow Food founder Carlo Petrini, is included in the volume *Slow Food: The Environmental Humanities*, published in 2022. She is the co-editor of the volume *Charting Exaltations: Document and Regenerative Peasants* published in 2016 by Lexington Books, and several articles on food culture, farming, and food activism.

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 SDSU

Testimonials

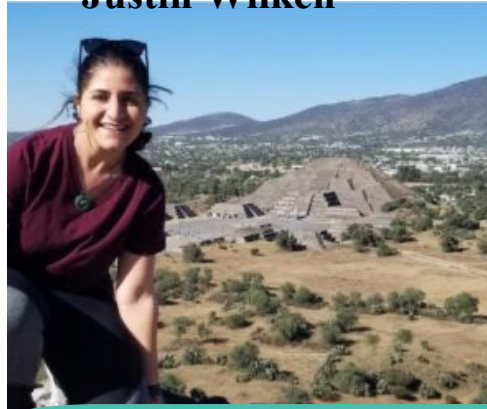


Being a part of NextGen SDSU as a first generation Latina student has provided me with a wide range of opportunities and a strong community of support. I'm thankful for all the networking, conferences, projects, and research I have been able to participate in. It has been an amazing experience to connect with all the students and staff who care deeply about our future.

Victoria Joya Euceda

Being selected as a student representative to attend the USDA's 100th Annual Agricultural Outlook Forum was only possible for me because I was a NEXTGEN grant recipient, and the unique opportunity to meet, exchange ideas, and discuss timely issues at the forefront of America's agriculture with producers, policymakers, business, government, and industry leaders was nothing short of a dream for me.

Justin Wilken



Participating in the USDA NextGen program has profoundly shaped my academic path and professional goals.

Judith Bross



Target: experiential learning

240 undergraduate, 18 Masters and 7 Doctoral students



Undergraduate Scholarship

Up to \$2,000/year

For participation in classes +
research

Graduate Stipend

Up to \$15,000/year for MA/MS

Up to \$30,000/year for PhD

Possible in-state tuition
remission

Summer Internships 2 to 8 weeks

Stipend + travel expenses

Pending

What we hope to accomplish



01

Built edible gardens at Imperial Valley and at tribal lands

02

To develop workshops with our Kumeyaay communities on native edible plants

03

To increase recruitment of PhD students



EXPANDING AND DIVERSIFYING CAREERS IN SUSTAINABLE FOOD SYSTEMS ALONG THE US-MEXICO BORDER

Questions?

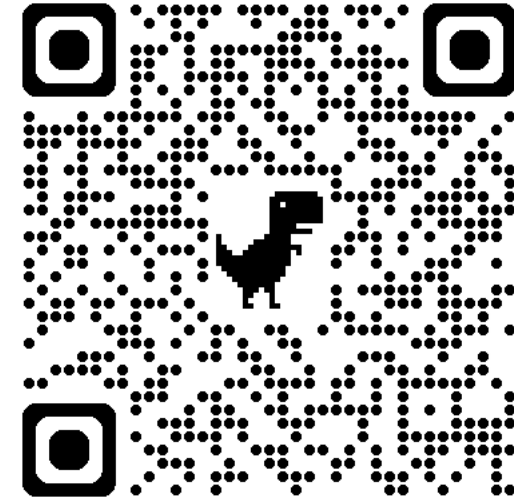
Contact Information:

Name: Lluvia Flores-Renteria

Campus/Department: SDSU/Biology

Website: <https://www.nextgen-sdsu.org>

Email: lfloresrenteria@sdsu.edu



Speakers Contacts

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Melawhy Garcia and Natalia Gatdula, Cal State Long Beach
melawhy.garcia@csulb.edu

Lluvia Flores Renteria, San Diego State
lfloresrenteria@sdsu.edu



Next Steps/Closing Remarks

Dr. Frank A. Gomez
Executive Director, STEM-NET
Office of the Chancellor



<https://www2.calstate.edu/impact-of-the-csu/research/stem-net>

Webcast Feedback Survey

Please take a few moments to tell us about your webcast experience.

Use the QR Scan Code to download it



STEM-NET Student Summer Research Symposium

Date: Wednesday, October 30, 2024

Time: 11:00 AM – 12:18 PM

Register Here



STEM-NET November Webcast

Topic: Artificial Intelligence in Teaching And Learning: Part I

Date: Wednesday, November 13, 2024

Time: 11:00 AM- 12:00 PM

Register Here





Join our **CSU STEM-NET Community listserv**

csustemnet@lists.calstate.edu



Begin a Conversation with Colleagues and Join our **Private CSU STEM-NET Facebook Group**

<https://www.facebook.com/groups/2629611737269292>



For more information about STEM-NET visit our website:



THANK YOU FOR JOINING US TODAY!

