



WELCOME!



CAL POLY

College of Agriculture, Food
& Environmental Sciences

TOPICS FOR TODAY

1

California agriculture

2

Cal Poly and the College of Agriculture,
Food and Environmental Sciences

3

Continuous change and other
thoughts

CALIFORNIA AGRICULTURE



- CA population estimated 39M in 2023
- Future population estimated 40.5 through 2036

CALIFORNIA

WORLD'S 5TH LARGEST GDP



GDP (\$T USD)

1	United States	\$20,893
2	China	\$14,722
3	Japan	\$5,057
4	Germany	\$3,846
5	CALIFORNIA	\$3,353

CALIFORNIA: U.S. AND GLOBAL SUPPLIER

FARMS +
RANCHES

69,000

24.2M ACRES
OF LAND
DEVOTED TO
AGRICULTURE

CASH

RECEIPTS

\$51.1B

13.7% of U.S. total

COMMODITIES

400+

EXPORTS

\$22.5B

TOP EXPORTS

Almonds \$4.65B

Dairy \$2.54B

Pistachios \$2.07B

Wine \$1.29B

Walnuts \$1.25B

CA Share of u.s. ag

exports

Tree nuts 100%

Vegetables 56.3%

Fruits 62%

Flowers/nursery 26.6%

TOP 5 AGRICULTURAL STATES IN CASH RECEIPTS



1	California	51,109,546
2	Iowa	34,626,720
3	Nebraska	26,345,219
4	Texas	24,898,569
5	Illinois	21,720,187

CALIFORNIA'S TOP 10 Commodities



- Milk and Cream \$7.57B
- Grapes \$5.23B
- Almonds \$5.03B
- Cattle and calves \$3.11B
- Berries \$3.02B
- Pistachios \$2.91B
- Lettuce \$2.03B
- Tomatoes \$1.18B
- Walnuts \$1.02B
- Rice \$1.00B

CALIFORNIA PRODUCES MAJORITY OF U.S. SPECIALTY FOOD CROPS

- 100% of artichokes
- 99% of walnuts
- 97% of kiwis
- 97% of plums
- 100% of celery
- 100% garlic
- 78% of cauliflower
- 88% of strawberries
- 100% of almonds
- 92% of apricots
- 96% of avocados
- 76% of all lettuce
- 72% of spinach
- 93% of carrots
- 79% of all tomatoes
- And the list goes on....

Crop and Livestock Commodities in which California Leads the Nation ¹

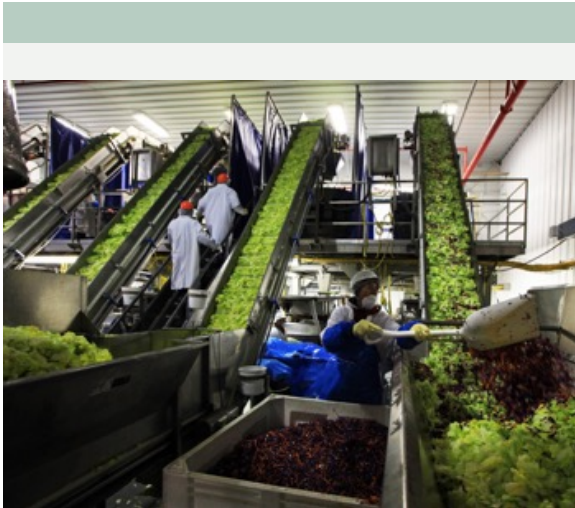
Almonds	Flowers, Bulbs	Mandarins & Mandarin Hybrids ²	Plums
Apricots	Flowers, Cut	Melons, Cantaloupe	Plums, Dried
Artichokes	Flowers, Potted Plants	Melons, Honeydew	Pluots
Avocados	Garlic	Dairy products, Milk	Pomegranates
Beans, Dry Lima	Grapes, Raisins	Nectarines	Raspberries
Broccoli	Grapes, Table	Nursery, Bedding Plants	Rice, Sweet
Brussels Sprouts	Grapes, Wine	Nursery Crops	Safflower
Cabbage, Fresh	Hay, Alfalfa	Olives	Seed, Alfalfa
Carrots, Fresh	Herbs	Onions, Dry	Seed, Bermuda Grass
Carrots, Processing	Jojoba	Onions, Green	Seed, Vegetable and Flower
Cauliflower	Kale	Parsley	Spinach, Fresh
Celery	Kiwifruit	Peaches, Clingstone	Strawberries
Cotton, American Pima	Kumquats	Peaches, Freestone	Tomatoes, Processing
Daikon	Lemons	Peppers, Chili	Triticale
Dates	Lettuce, Head	Peppers, Bell	Vegetables, Greenhouse
Eggplant	Lettuce, Leaf	Persimmons	Vegetables, Oriental
Escarole/Endive	Lettuce, Romaine	Pigeons and Squabs	Walnuts
Figs	Limes	Pistachios	Watercress

¹ California is the sole producer (99 percent or more) of the commodities in **bold**.

² Includes tangelos, tangerines, and tangors.

CALIFORNIA'S FOOD AND BEVERAGE PROCESSING IMPACT

\$82B total value-add | 760,000 jobs



California Agricultural Products Export Values and Rankings, 2019-2021

2021 Rank	Product	2019	2020	2021	Change in Value 2020 to 2021
			\$1 Million		Percent ¹
1	Almonds	4,901	4,658	4,647	-0.2
2	Dairy and Products	1,805	2,037	2,537	24.6
3	Pistachios ^{2,3}	2,009	1,669	2,071	24.0
4	Wine ^{2,3}	1,228	1,143	1,288	12.7
5	Walnuts	1,250	1,246	1,247	0.1
6	Rice	765	831	774	-6.8
7	Table Grapes	743	731	668	-8.7
8	Tomatoes, Processed	623	618	659	6.5
9	Oranges and Products ^{2,3}	549	597	625	4.6
10	Beef and Products ⁴	404	409	572	39.7
11	Strawberries	402	407	475	16.6
12	Hay ²	338	346	382	10.2
13	Seeds for Sowing	333	311	314	0.9
14	Lettuce	292	292	304	4.4
15	Cotton	437	289	287	-0.9
16	Raisins	257	226	224	-1.0
17	Lemons ²	203	186	189	2.0
18	Raspberries and Blackberries ^{2,5}	142	140	162	15.4
19	Prunes	126	122	159	30.4
20	Peaches and Nectarines	119	120	146	21.7

¹ Total export values for each year are rounded to the nearest million dollars. More precise values are used in the percent change calculations.

² Export values for 2020 were revised based on updated production data from the U.S. Department of Agriculture/National Agricultural Statistics Service.

³ Export values for 2019 were revised based on updated production data from the U.S. Department of Agriculture/National Agricultural Statistics Service.

⁴ Hides and skins are included in the heading "Beef and Products".

⁵ "Raspberries and Blackberries" category also includes exports of mulberries and loganberries.

Source: University of California, Department of Agricultural and Resource Economics

CALIFORNIA'S TOP 10 EXPORT DESTINATIONS

- **Canada**
- **European Union**
- **China/Hong Kong**
- **Japan**
- **Mexico**
- **South Korea**
- **India**
- **United Arab Emirates**
- **Taiwan**
- **Philippines**



ISSUES AFFECTING CALIFORNIA

AGRICULTURE

1 **Water: availability, SGMA, nitrates/drought-related impacts**

2 **Labor: Increasing wage costs (base wages/ OT thresholds), regulatory Compliance**

3 **Federal immigration policies, enforcement**

4 **Dramatic increase in regulations: air, water, pesticides, etc.**

5 **Food Safety Modernization Act**

6 **Volatile trade policies, logistics, and trucking**



Illegal Immigration Is Down, Changing the Face of California Farms

Farmers are turning to workers on seasonal visas and mechanizing what they can. Many labor-intensive crops are shifting south of the border.



CAL POLY
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CALIFORNIA STATE UNIVERSITY SYSTEM

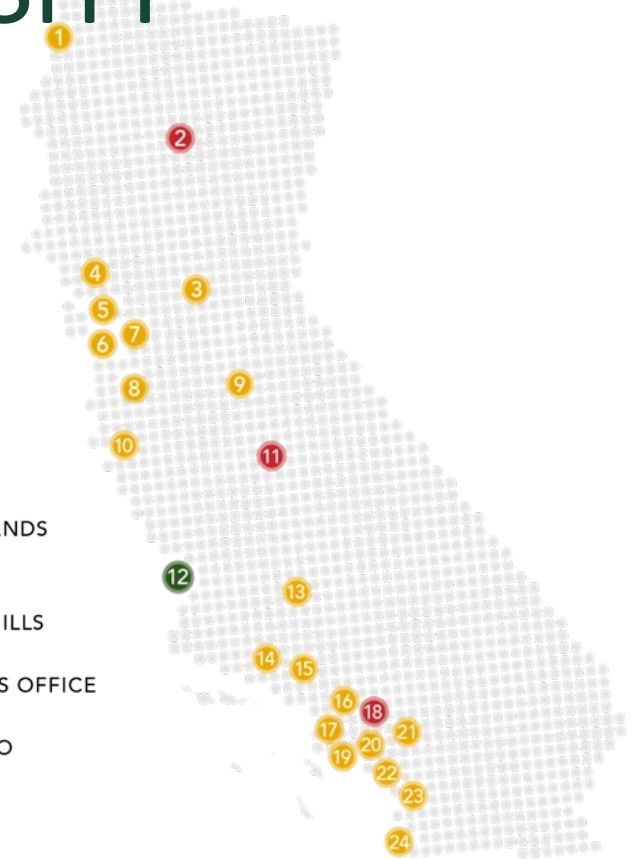
The largest university system in the U.S.,
known for preparing job-ready graduates.

23 Campuses

474,600+ Students

49,000 Faculty and Staff

- | | |
|--------------------|------------------------|
| 1 HUMBOLDT | 13 BAKERSFIELD |
| 2 CHICO | 14 CHANNEL ISLANDS |
| 3 SACRAMENTO | 15 NORTHRIDGE |
| 4 SONOMA | 16 LOS ANGELES |
| 5 MARITIME | 17 DOMINGUEZ HILLS |
| 6 SAN FRANCISCO | 18 POMONA |
| 7 HAYWARD | 19 CHANCELLOR'S OFFICE |
| 8 SAN JOSÉ | 20 LONG BEACH |
| 9 STANISLAUS | 21 SAN BERNADINO |
| 10 MONTEREY BAY | 22 FULLERTON |
| 11 FRESNO | 23 SAN MARCOS |
| 12 SAN LUIS OBISPO | 24 SAN DIEGO |



SIX COLLEGES

- 1 Agriculture, Food and Environmental Sciences**
- 2 Architecture**
- 3 Business**
- 4 Engineering**
- 5 Liberal Arts**
- 6 Science and Mathematics**



COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENTAL SCIENCES

Nearly 4,200 students across 15 majors in nine departments

- Our mission: develop talent and solutions for food, agriculture, and environmental management industries in California and beyond
- Experiential learning embedded across the curriculum
- 18:1 student to faculty ratio
- + • 52+ student clubs



9 DEPARTMENTS, 15 MAJORS

1 Agribusiness

Agricultural Business

2 Agricultural Education and Communication

Agricultural Science

Agricultural Communication

3 Animal Science

Animal Science

Dairy Science

4 BioResource and Agricultural Engineering

Agricultural Systems Management

BioResource and Agricultural Engineering

5 Food Science and Nutrition

Food Science

Nutrition

6 Experience Industry Management

Recreation, Parks and Tourism Administration

7 Plant Sciences

Plant Sciences

8 Natural Resources Management and Environmental Sciences

Environmental Earth and Soil Sciences

Environmental Management and Protection

Forest and Fire Sciences

9 Wine and Viticulture

Wine and Viticulture

GROWING APPLICANT POOL

2021

65,514 Total

54,609 First-year

10,905 Transfer

2022

68,809 Total

59,004 First-year

9,005 Transfer

2023

73,097 Total

63,917 First-year

9,180 Transfer

GROWING APPLICANT POOL: cAFES

2023

6,560 Total

5,815 first-year

745 transfer

2022

5,972 Total

5,242 first-year

730 transfer

Majors with significant application spikes

Agricultural Communication +44%

Agricultural Systems Management +68%

BioResource and Agricultural Engineering +24%

Environmental Earth and Soil Sciences +35%

Recreation, Parks and Tourism Administration +34%



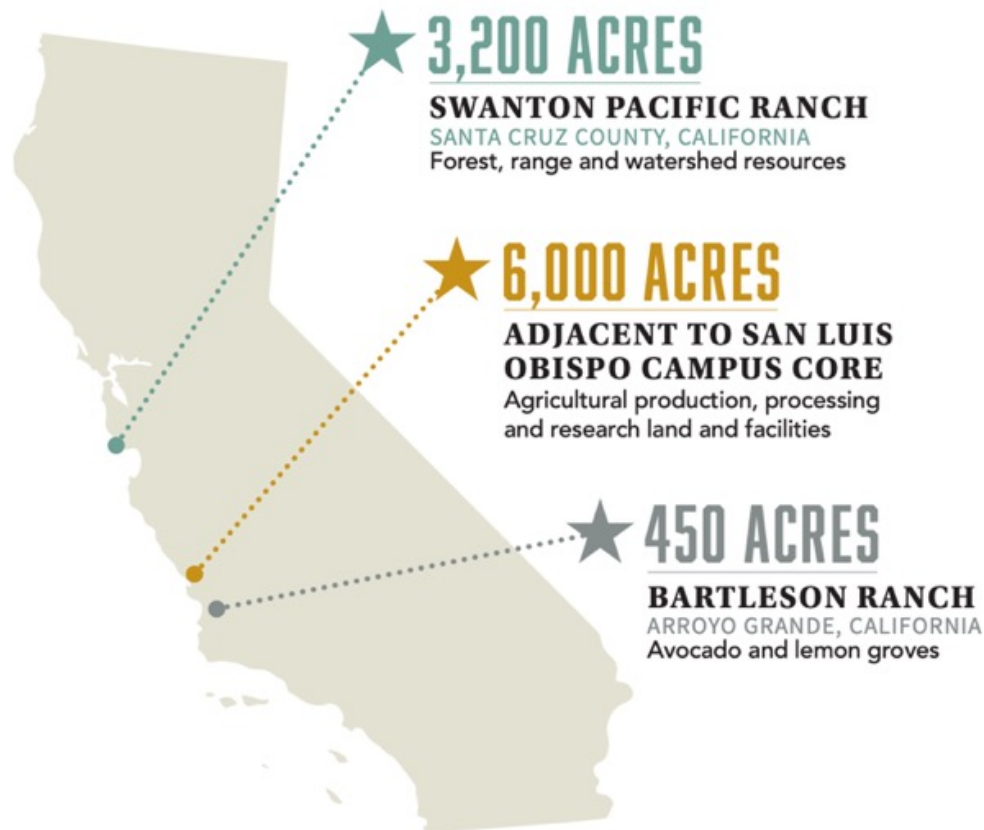
CAL POLY

College of Agriculture, Food
& Environmental Sciences

MAJOR	2023	2022	2021	2020	2019
AGB	633	596	585	578	618
AC	189	129	138	195	166
AGSC	177	119	141	171	187
ASM	111	67	61	83	91
ASCI	1,469	1,339	1,460	1,481	1,678
BRAE	169	122	97	108	115
DSCI	34	39	55	53	90
EESS	455	307	287	270	298
EIM	359	251	253	352	304
ENVM	846	767	840	858	744
FDSC	220	259	213	265	215
FFS	403	413	393	226	254
NUTR	416	397	473	495	537
PLSC	149	350	352	268	295
WWIT	185	162	191	235	284
CAFES TOTAL	5,815	5,972	5,539	5,618	5,876



10,000+ ACRES OF LEARN BY DOING OPEN SPACE



CLIMATE SMART STRATEGIC INTENT



AUTOMATION

Labor reduction through automation and robotics



WATER

Availability, quality, sustainability



FOOD SECURITY

FSMA, processing, supply chain



PLANT

Soil health, organic production, microbiome



DATA

Analytics and artificial intelligence



ONE HEALTH

People, animal, environmental health

Competitive advantage

We work hard to establish and maintain a premier reputation for key industries in California and beyond

1

Closely tied with industry, government agencies and NGOs, and international partners

2

Willing partner with direct focus on high-impact, specialized industries, e.g., strawberries, organic, forestry & fire science, automation/robotics, startups, etc.

3

Specialized facilities and focused resources, e.g., Meat Processing Center, Dairy and Creamery Complex, Animal Health Center, Center for Wine and Viticulture

4

Prime location: specialty crop-growing region and close to silicon valley entrepreneurial machine

5

CAFES' production operations used for teaching and research are managed by students; exposes them to opportunities for managing operations and other students, fiscal responsibility, undergraduate research, etc.



STATE BUDGET FUNDING : \$39M

SWANTON PACIFIC RANCH

\$20.3M to support building an Education Center for critical education and workforce development.

CSU AG FARMS

\$75M to address climate-smart agriculture, natural resource management and other climate-related issues. Funding split equally to Cal Poly SLO, Cal Poly Pomona, Chico State and Fresno State, **\$18.75M each**.

\$5M will be used to support the Plant Sciences Complex.



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STATE BUDGET FUNDING UPDATE:

\$18.75M

CLIMATE SMART AG INFRASTRUCTURE

Total funding	—————	\$18,750,000
Plant Sciences Complex		\$5,000,000
Production labs		\$7,049,700
Fencing		\$3,424,762
Rolling stock		\$4,240,500
Total spend	—————	\$19,714,962
Donor support needed		-\$964,962

KEY CAPITAL PROJECTS

1

JUSTIN and J. LOHR Center for Wine and Viticulture

2

William and Linda Frost Center for Research and Innovation
(Boswell Ag Tech Center)

3

Plant Sciences Complex

5

Swanton Pacific Ranch

6

Animal Health Center

JUSTIN and J.
LOHR Center
for Wine &
Viticulture
Opened 2022





Boswell Ag Tech Center

Opened 2023



BOSWELL AG TECH CENTER

The Boswell Ag Tech Center within the William and Linda Frost Center for Research and Innovation is where agriculture, food and technology come together. The Boswell Ag Tech Center, a centerpiece of the new \$125 million complex, will enable research and discovery to train tomorrow's leaders in agriculture and food innovation.



Within the Boswell Ag Tech Center, students, faculty and industry will come together to create safe, healthy and sustainable food for the future – while solving today's more complex food issues.



CULINARY TEACHING LAB

A creative culinary space where students will learn to blend culinary and food science principles in ingredient development, food product development, and entrepreneurial pursuits. In addition, professional and guest chefs will be showcased to highlight culinary skills, foods and flavors, and to teach students, as well as the public, new techniques, innovations and culinary craft.



SENSORY ANALYSIS TEACHING AND RESEARCH LAB

The Sensory Lab will be used to train students and conduct research to determine insights into consumer goods and new food and beverage products. Evaluations include basic discrimination testing between products, testing to determine how well products will likely be accepted or preferred by the consumer, and testing to determine quantitative differences between products. Food companies will have the opportunity to sponsor research, joint projects and consumer testing.





FOOD SAFETY RESEARCH LAB



FOOD SAFETY TEACHING LAB

FOOD SAFETY LABS

Food safety is of critical importance and this lab will support the need for risk assessment data in the food and agriculture industries. The lab is designed as a biosafety level 2 (BSL-2) facility suitable for experiments involving foodborne pathogens of moderate potential hazard to people and the environment. The lab will be used to conduct studies to determine the ability of pathogens to grow, survive or die-off during processing and/or subsequent storage. Additionally, the development and assessment of new food safety mitigation processes or strategies will be supported by this lab.



TEACHING AND RESEARCH INSTRUMENTATION LAB

This lab will use analytical methods to gain a more complete picture of the metabolic consequences of dietary interventions and disease processes. The lab will be used to conduct food science projects that involve the quantification of phytonutrients, vitamins, amino acids, carbohydrates, and fatty acids, in order to assess food composition and the effects of food processing on diet and Health.



NUTRITION AND FOOD STUDIES LAB

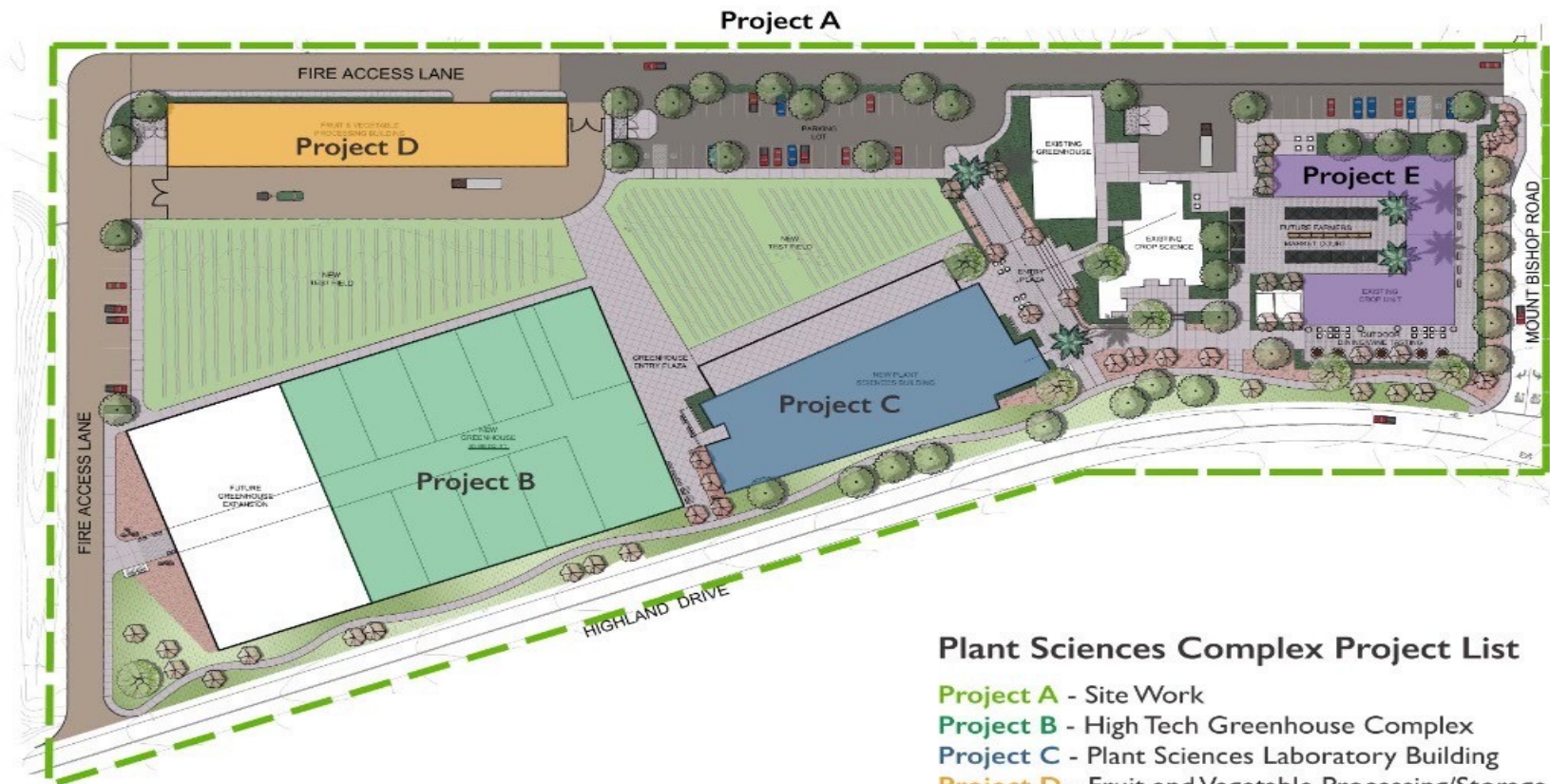
This lab supports new food and beverage product development, and possesses analytical instrumentation for determining nutrient levels and other food components. The lab will also support the evaluation of nutrition products and supplements designed to support exercise recovery, including analysis of metabolic response to nutrition and exercise.



EXPERIENCE INNOVATION LAB

This lab will be a creative space at the center of designing technological, digital and personal traveler experiences for consumers and industry. An interdisciplinary collaboration led by Cal Poly's pioneering Experience Industry Management Department, the lab will consider architecture and design, food science and wine, and marketing and graphics in creating impactful user experiences across a spectrum of products and industries.

PLANT SCIENCES COMPLEX



Plant Sciences Complex Project List

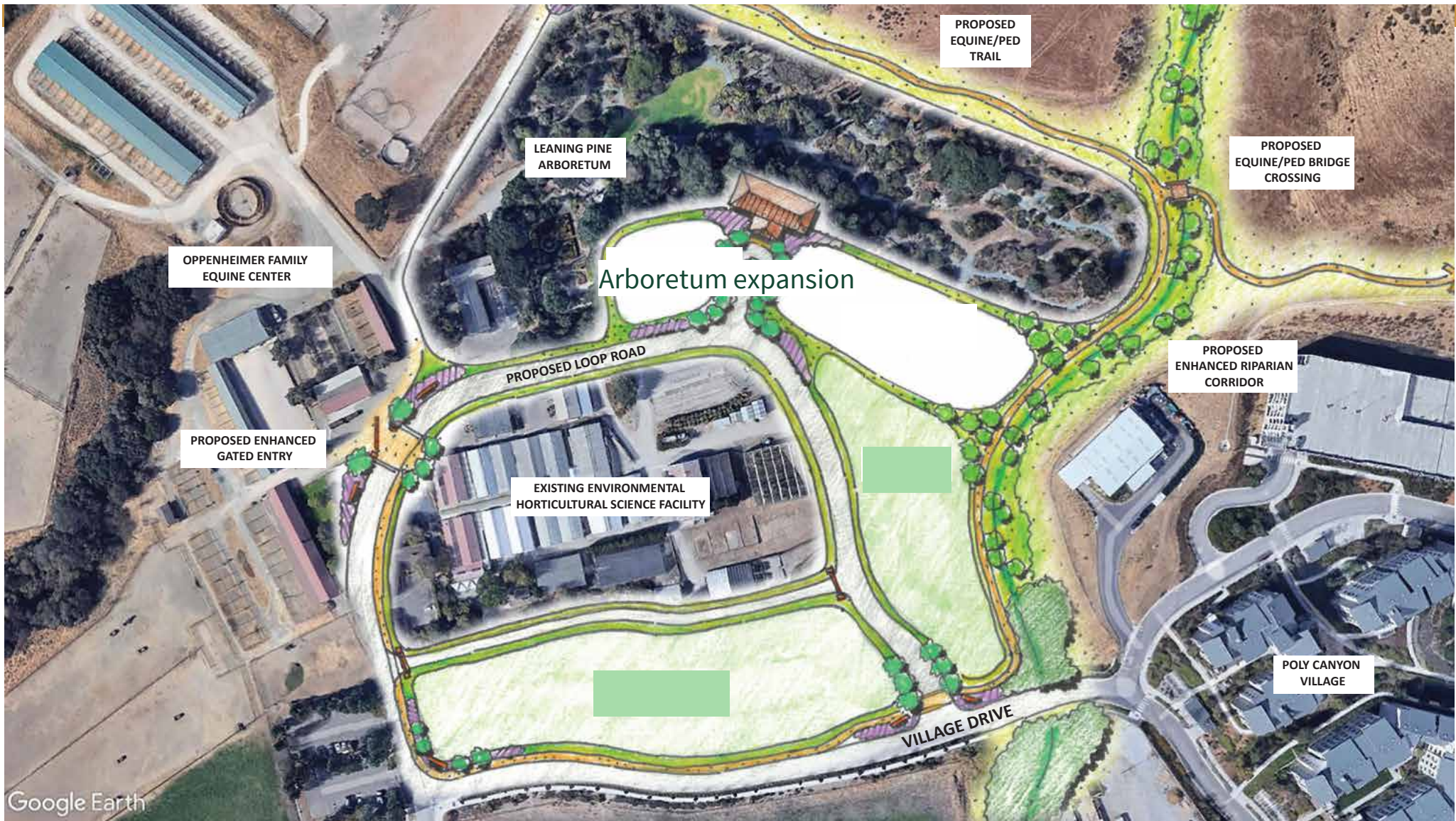
- Project A** - Site Work
- Project B** - High Tech Greenhouse Complex
- Project C** - Plant Sciences Laboratory Building
- Project D** - Fruit and Vegetable Processing/Storage
- Project E** - Cal Poly Farm Store

Swanton Pacific Ranch Rebuild



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OPPENHEIMER FAMILY
EQUINE CENTER

LEANING PINE
ARBORETUM

Arboretum expansion

PROPOSED LOOP ROAD

EXISTING ENVIRONMENTAL
HORTICULTURAL SCIENCE FACILITY

PROPOSED
EQUINE/PED
TRAIL

PROPOSED
EQUINE/PED BRIDGE
CROSSING

PROPOSED
ENHANCED RIPARIAN
CORRIDOR

PROPOSED ENHANCED
GATED ENTRY

POLY CANYON
VILLAGE

VILLAGE DRIVE

Google Earth



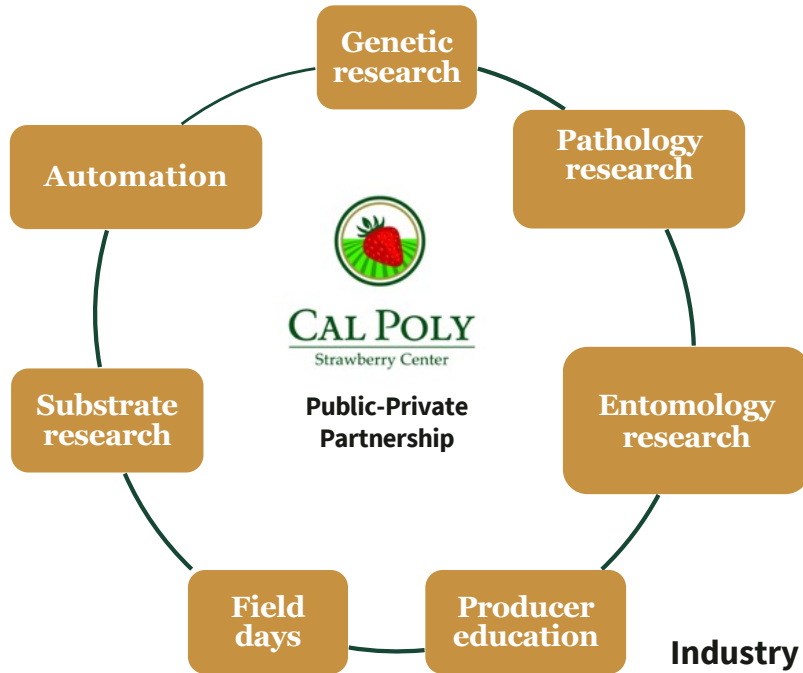
OUR MODEL: CENTERS SUPPORTING INDUSTRY

PUBLIC-PRIVATE PARTNERSHIPS (PPP)

MIXING BOWLS: a model for the future

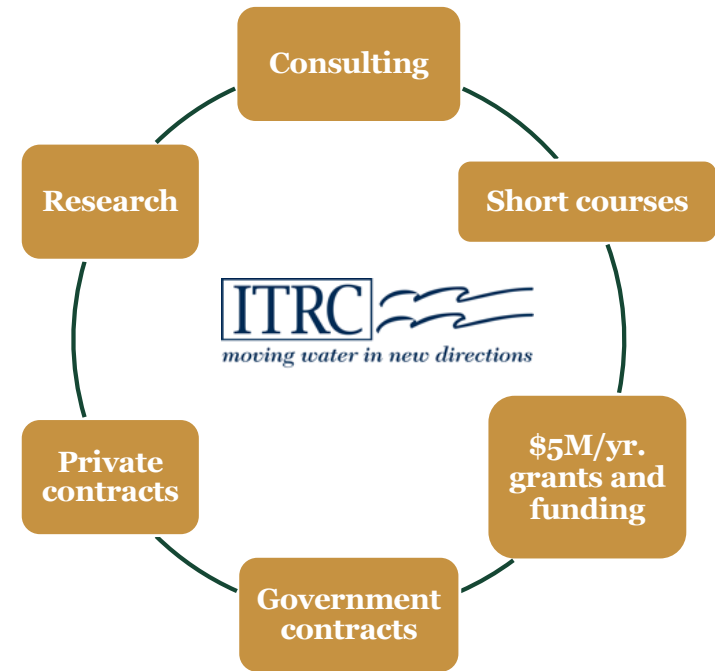
- Break down barriers to collaboration
- Faculty and staff work across departments, colleges, other universities
- Students work in teams from across campus to focus on solutions
- Focus on solving most pressing industry problems within three years
- Researchers from academia and industry work hand-in-hand
- Clearing-house for research efforts and education

PROVEN SUCCESSES



Industry Partners:

- All leading global genetics companies
- All leading strawberry growers and shippers
- All leading chemical companies
- All related technology companies



Industry Partners:

- All leading irrigation supply companies
- All leading water and irrigation entities
- Major farming companies

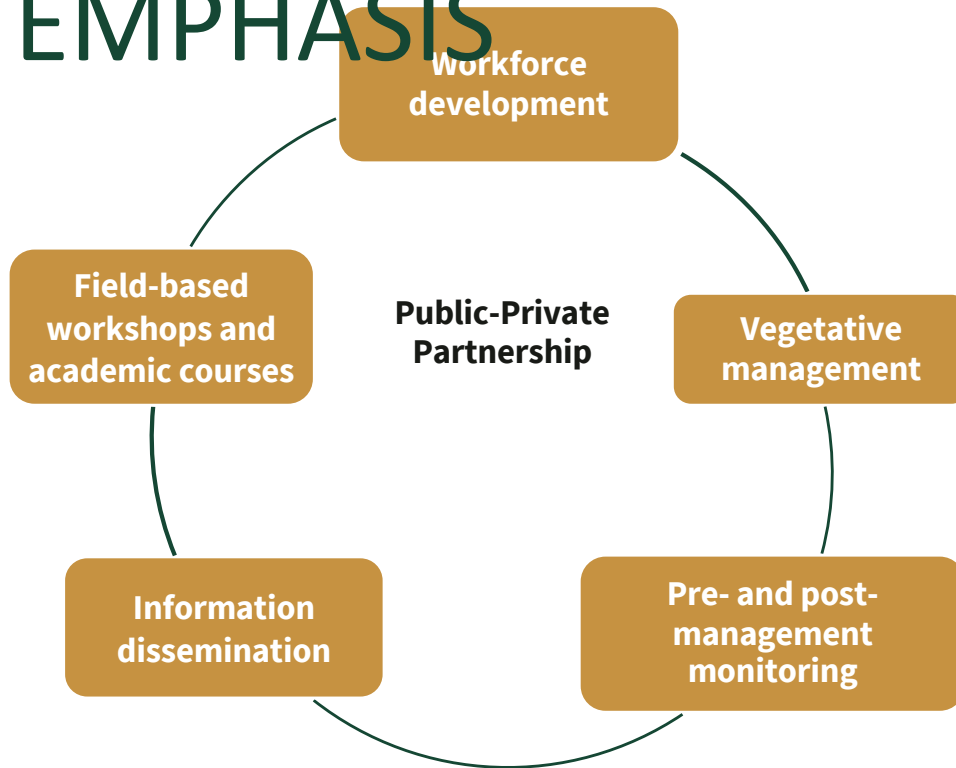
CENTER FOR ORGANIC PRODUCTION AND RESEARCH

- Grimmiway Farms + Cal Poly

- \$5M donation
- Collaborative mixing bowl to solve industry problems
- Partners: other universities + industry + government
- Focus on applied research and workforce development as industry continues to grow



STRENGTHENING OUR FOREST HEALTH EMPHASIS



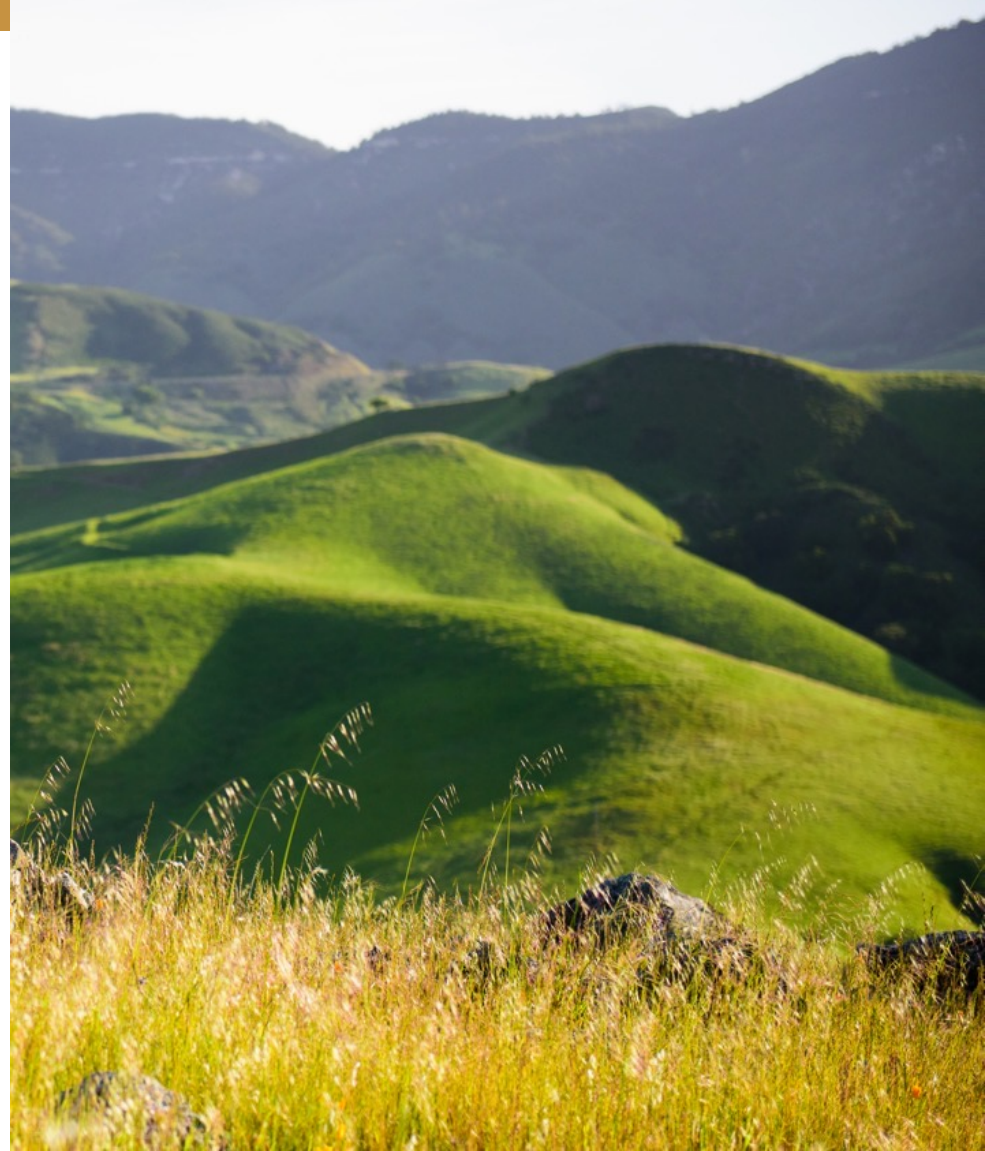
Partners:

- CAL FIRE
- California Forestry Association
- Board of Forestry and Fire Protection
 - Range Management Advisory Committee
 - Resource Management
- Bureau of Land Management
- USDA Forest Service
- Sierra Pacific Industries
- County fire departments
- Investor-owned utilities (PG&E, SCE, SDGE)
- California Fire Science Consortium
- Associate of Fire Ecology
- Society of American Foresters
- UC Berkeley and Humboldt State

OTHER THOUGHTS

HEAD WINDS

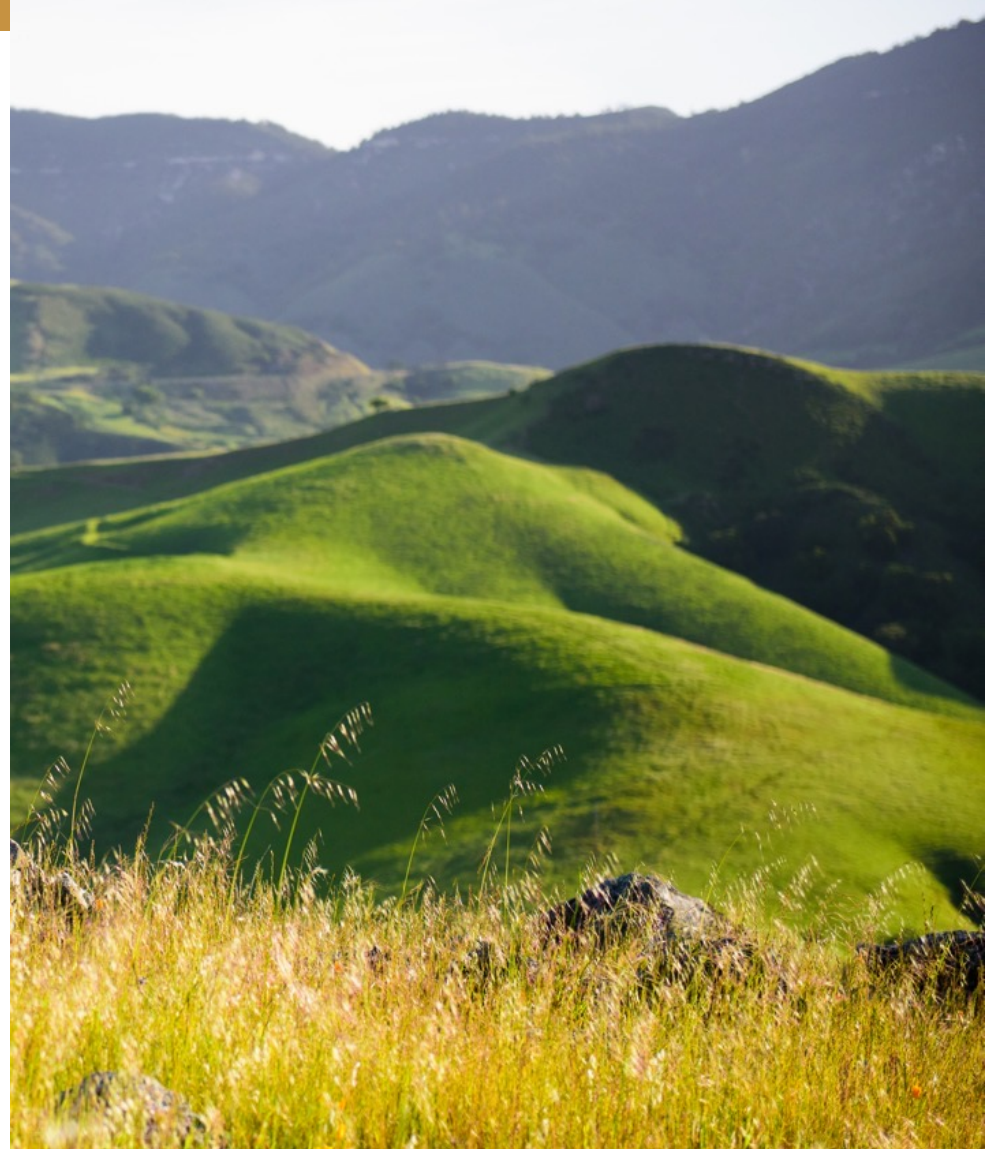
- ✓ State budget support decline
- ✓ Leadership turnover and cultivation
- ✓ High cost of living in SLO
- ✓ Limiting domestic pool of PhDs
- ✓ Declining number of high school graduates





OTHER THOUGHTS

- ✓ People are key to success:
shared vision
- ✓ Leaders vs. Managers:
direction, inspiration,
change vs predictability
- ✓ Lean forward, dream big
- ✓ Know your brand value –
and who needs what you
produce





OTHER THOUGHTS

- ✓ Model the behavior you expect
- ✓ Work with intention, build others
- ✓ Challenge the process
- ✓ It's not about you
- ✓ Be humble. Be kind



QUESTIONS?



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