BERKELEY CLIMATE MAP — Agriculture JUNE 2025
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Berkeley's work on climate and agriculture is hosted primarily in the Rausser College of Natural Resources. Key climate/ag research units on the campus include the Berkeley Food Institute, the USDA-NIFA AI Institute for Next Generation Food Systems, and the Innovative Genomics Institute's Climate & Sustainable Agriculture Program.

Researchers are addressing a wide range of climate and agriculture topics:

- Food justice
- Urban agroecology
- Local health food systems
- Climate impacts on ag and ag workers – drought, heat, storms
- Economic impacts of climate on ag
- Crop yields and heat
- Changes in ag production in China
- Biochar
- Soil carbon strategies
- Microbiomes
- Expanding access to healthy, affordable food
- Crop rotation and cover crops
- Sustainable and equitable food production
- Immigration and forced displacement from climate impacts
- AI and ML for reducing environmental impacts of ag
- Water management
- Socioeconomic impacts of extreme events
- Farmworkers
- Regenerative agriculture
- Sustainable rangelands
- Genome engineering to address climate impacts on ag
- Climate impacts of fertilizer production
- Water demand, supply and quality
- Enhanced weathering and other soil carbon strategies
- Rural communities and climate change
- Carbon markets and U.S. agriculture
- Composting of high-emissions organic waste
- Cultural politics of food
- Tribal food practices
- Global food security threats
- Virtual food systems

First	Last	Affiliation (primary)	Summary	Selected Projects/Reports/Classes
Charisma	Acey	CED - City & Regional Planning	Faculty Director, Berkeley Food Institute Climate Equity Environmental Justice Core Faculty Acey's work focuses on local and regional environmental sustainability, with special attention to poverty reduction, urban governance, connections between food justice and environmental justice, urban agroecology, and access to basic services. She has worked on participatory re-zoning for local healthy food systems and sustainability planning in the San Francisco East Bay, Columbus, Ohio, and Portland, Oregon. .	PI for UCOP $100M Climate Action Seed LOI -- California Racial Equity Climate Adaptation Plan (RECAP) Toolkit The Intersection of Race and the Environment – Acey, Polsky, Powell in Berkeley Law-hosted discussion. Planning for Sustainability CYPLAN 119 **(FALL 2023)**
Miguel	Alteri	RCNR - ESPM	Professor of Agroecology with work focused on sustainable agriculture, agroecology, and the impacts of climate on agricultural systems.	
David	Anthoff	RCNR - Energy Resources Group	Environmental economist who studies climate change and environmental policy. He co-developed the integrated assessment model *FUND* that is used widely in academic research and in policy analysis. He has advised numerous organizations (including *US EPA* and the Canadian *National Round Table on the Environment and the Economy*) on the economics of climate change. CEEJ Affiliate	Using ML to assess the economic impact of climatic change on agriculture, health, energy use, etc "Researchers provide social cost of carbon roadmap" Climate Change Economics – ENERES C176 001 (FALL 2023)
Max	Auffhammer	RCNR - Agricultural & Resource Economics	Auffhammer's research focuses on environmental and resource economics, energy economics and applied econometrics.	Heat in the Heartland: Crop Yield and Coverage Response to Climate Change Along the Mississippi (2018)

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			CEEJ Affiliate	Quantifying Economic Damages from Climate Change (2018) – Using ML to quantify climate impacts The Spatiotemporal Pattern of Surface Ozone and Its Impact on Agricultural Productivity in China. **PNAS Nexus**. (conditionally accepted)
John	Bailey	RCNR - ANR	Director, ANR Hopland Research Center UC ANR Hopland Research and Extension Center Biochar application to lands	Installing grid-interconnected biogasifier units to generate electricity and sequester carbon through biochar. UCOP Carbon Offset Program grant to help fund research on biochar and develop utilization network. Conducting field trial examining the potential of composted biochar to develop additional soil carbon above the amounts directly added, collaborating with Jennifer Pett-Ridge at LLNL. Installing CA Healthy **Soil**s Program hedgerow for demonstration of rangeland application of hedgerow for soil health and carbon sequestration. Implementing Carbon Farm Plan developed with guidance from Resource Conservation District to

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				map out plans to maximize carbon sequestration on HREC property
Jill	Banfield	RCNR - ESPM, Innovative Genomics Institute	Geomicrobiology, environmental biogeochemistry, microbial community ecology and evolution Banfield Lab – Nanogeoscience Deputy Director, Microbiology, Innovative Genomics Institute How do soil microbial communities respond to global climate? Working in a large, long term, well replicated grassland climate change experimental system in the Angelo Coastal Reserve, CA, we are studying how microbial communities respond to predicted changes in rainfall timing and abundance. Specific questions include: (i) do different rainfall patterns alter microbial community membership? (ii) do above ground changes in vegetation correlate with, and drive, changes in subsurface consortia? (iii) how do communities vary with seasons, as the result of the first rain after the dry season, and as the result of extreme weather events?	**"Engineering the Microbiome with CRISPR to Improve our Climate and Health."** Led by IGI Founder **Jennifer Doudna** and IGI's Microbiology Director **Jill Banfield**, the project is a collaboration of IGI, UC Davis, and UCSF and is funded by a $70M grant from The Audacious Project. Microbiomes represent a significant and largely unaddressed source of global greenhouse gas emissions. Microbes from livestock, agricultural soils, and landfills emit methane and nitrous oxide. Cow burps are commonly pointed to as a major source of methane, but those burps actually originate from methane-producing microbes in the animals' guts. Research Review in Plant and Microbial Biology - **PLANTBI 292 007 (FALL 2023)**
	Berkeley Food Institute	RCNR	Jeanne Merrill, Executive Director The Berkeley Food Institute seeks to transform food systems to expand access to healthy, affordable food and promote sustainable and equitable food production. We	2 Days of Soil, Science and Solutions – Report on CalCAN biennial conference on climate change and California agriculture

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			empower new leaders with capacities to cultivate diverse, just, resilient, and healthy food systems. Current global food systems have achieved remarkable historical growth and expansion, yet increasingly fail on many fronts. We witness erosion of ecosystem and cultural diversity, decreased resilience in the face of emerging climate change, wasteful food and natural resources usage, persistent pollution, and myriad social injustices—including exploitation of food systems workers. We also watch millions of people go hungry while many others suffer from obesity. See BFI list of Berkeley Affiliated Faculty and Staff who have "dedicated a portion of their work to food and agriculture systems. Food systems work is inherently interdisciplinary, and BFI's unique strength comes from the wide range of expertise across campus. The BFI addresses many of the impediments to systemic change in food systems by creating productive connections between members of the scholarly community, farmers and other producers, non-governmental organizations, governments, and civil society.	Fostering Resilience and Health of Food Systems in the Face of Drought
	Berkeley Inter-Disciplinary Migration Initiative (BIMI)	Campuswide – Institute for Governmental Studies	Harpreet Mangat, Executive Director We are a partnership of faculty, researchers and students who investigate human mobility, immigrants' integration	Mapping Spatial Inequality: The New Geography of Poverty and Immigration Disaster and Migration: Inequalities in Climate Migration (SS Matrix Panel video)

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			and the ways migration transforms societies around the world.	
Timothy	Bowles	RCNR - ESPM, Berkeley Food Institute	Co-Associate Faculty Director, Berkeley Food Institute Agroecology, soil ecology and biogeochemistry, plant-soil-microbe interactions How can reliance on biodiversity and ecological processes create productive, resilient, and healthy agricultural systems? This question frames Bowles' overarching goal, which is to support transformation of our agricultural system from one reliant on intensive, synthetic inputs to one based on ecological processes. How diversified, biologically based farms affect soil health, resource-use-efficiency, and resilience to environmental change, especially drought.	Quantifying direct yield benefits of soil carbon increases from cover cropping Long-Term Evidence Shows that Crop-Rotation Diversification Increases Agricultural Resilience to Adverse Growing Conditions in North America How does building healthy soils impact sustainable use of water resources in irrigated agriculture? Agricultural Ecology ESPM 118 001 (Fall 2023)
James Bentley	Brown	CDSS - Statistics	Interpretable and explainable artificial intelligence for data science. Statistics, machine learning, deep learning, reinforcement learning, artificial intelligence, developmental biology, genetics, functional genomics, proteomics, hyperspectral imaging, agriculture, control of complex natural and man-made systems, toxicology, and ecotoxicology.	Using ML for studies on reducing environmental impact from agriculture.
Ellen	Bruno	RCNR - Agricultural & Resource Economics	Bruno is developing an extension program that focuses on policy issues relevant to California's agriculture and natural resources. Her current research considers the potential and effectiveness of water-related policies, which includes understanding how farmers respond to changes in water prices. Her work is motivated by climate	"Untapped Potential: Leak Reduction is the Most Cost-Effective Urban Water Management Tool." *Environmental Research Letters* 17.3: 034021.

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			change and the need for strategies that mitigate the economic costs of drought. As an extension economist, she works with state and local government agencies, as well as nonprofits and practitioners, to improve the management of California's water supplies.	Ellen M. Bruno and Katrina Jessoe. 2021. "Missing Markets: Evidence on Agricultural Water Demand from Volumetric Pricing." *Journal of Public Economics* 196: 104374.
Tamma	Carleton	RCNR - ESPM	Carleton's work focuses on climate change, water resource management, remote sensing, agriculture, and the health effects of air pollution.	
Federico	Castillo	RCNR - ESPM	Castillo's research is centered on technology transfer and innovation, the socio-economic impacts extreme events associated with climate change, the economic aspects of protected areas and migration. Works with the Tropical Agricultural Research Center (CATIE), the National Autonomous University of Mexico (UNAM), LBNL, UCSB, and UC Davis in projects dealing with ecosystem-based adaptation to climate change, the socio-economic impact of weather extremes in California agriculture and climate change impacts on migration from Mexico to the US.	Extreme Heat and COVID-19: A Dual Burden for Farmworkers (2022) Joint impact research on COVID and heatwaves: 360 farmworkers surveyed—impacts on income and health. Issues related to gender in the ag. labor force/ Mx and USA relations UC-Mexico Alianza Program– Recently funded grant to establish a "UC-Mexico Farm Labor Research Cluster" with participation of UC and Mexican researchers, public and private sector and CBOs. Latinos & the Environment – helping people of color enter into the climate research space. Conference in Mexico City, March 14-15, for researchers to discuss farm

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				labor, migration and climate change drivers impacting both.
	Center for Responsible Business	Haas	Robert Strand, Executive Director Sustainable food. The Center connects students, businesses, and faculty to mobilize the positive potential of business to create a more responsible, resilient, and sustainable society. Building on more than a decade of research, teaching, and engaging with business, we educate and provoke thoughtful debate. The Center encourages sustainability-minded research and its application in the marketplace of commerce and ideas We use the words "sustainable" and "sustainability" in the broadest sense to include social, environmental, and economic considerations. This allows us to explore a wide array of issues, while retaining the flexibility to focus resources and attention for maximum impact. Our current focus areas are human rights and business, sustainable innovation, and sustainable food.	"General Mills: Driving Food Systems Change through Regenerative Agriculture" November 2019 "Reversing Climate Change Through Sustainable Food: Patagonia Provisions Attempts to Scale a "Big Wall"" April 2017
Devin	Coleman-Derr	RCNR - Plant and Microbial Biology, IGI	The laboratory investigates the effects of drought and other abiotic stresses on the microbiomes associated with *Sorghum bicolor* and other grass species. With the world population expected to reach 9 billion by 2050, it is estimated that the global food supply will need to increase by 70 percent to meet rapidly rising demand. Changes in the global climate may well compound this challenge, as predicted increases in environmental stresses, such as	

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			drought and high salinity, are expected to reduce crop productivity.	
Junko	Habu	L&S Social Sciences - Anthropology	Habu conducts research on human-environmental interaction, human rights, and the long-term sustainability of human cultures and societies in the past and present. Using the theoretical framework of historical ecology, the research focuses on the importance of food and subsistence diversity, social networks and local autonomy for understanding the resilience of socioeconomic systems.	Environmental Archeology ANTHRO 135B 001 - LEC 001 FALL 2023
Lynn	Huntsinger	RCNR - ESPM	Rangeland and conservation management. Huntsinger's work seeks to understand coupled human-natural systems, with the goal of learning how long-term, sustainable management of rangelands can be created, and of contributing to the growing body of literature and theory surrounding the concept of coupled systems.	California Rangeland Trust: A common ground. Film. 2018. California Rangeland Trust: From the ground up. Film 2021. Ecosystem Service valuation – 17th Annual Rangeland Summit Monterey Carbon Sequestration workshop, October 2022, and Oak Symposium plenary, San Luis Obispo, Nov. 2, 2022. Keeping Carbon in the Bank. 1:19 Teaching: ESPM 280 – Seminar in Range Ecosystem Planning and Policy: California's Natural and Working Lands Climate Change Strategy SPRING 2022

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Carly	Hyland	Public Health - Environmental Health Services	Assistant Professor of Cooperative Extension in SPH focused on interventions and research translation to mitigate the health impacts of climate change among agricultural and food systems workers, with a focus on heat, wildfire smoke, and pesticides.	
	Innovative Genomics Institute	Campuswide	Jennifer Doudna, Founder and Chair of the IGI Governance Board Brad Ringeisen, Executive Director Climate and Sustainable Agriculture Program Climate change, crop diseases, and hunger are intimately intertwined problems. We are using genome engineering as a tool to address all three. We are developing and deploying genome-editing technology to capture and sequester more greenhouse gases and to develop climate-friendly agricultural solutions for farmers in developing countries. Our focus is on those most vulnerable to a changing climate, and areas in agriculture that are underdeveloped by the commercial sector.	CRISPR for Climate Change Disease Resistant Crops Precision Microbiome Editing 2023 UCOP Proposal: Lab to Land California: Biotechnology for Accelerated Conservation and Climate Resilience Grant: Technology Enabled Biological Carbon Capture and Sequestration- $21M, 8/2022

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				Funding kicks off a new era in climate research at the IGI. A gift of $3 million dollars from an anonymous donor to the Innovative Genomics Institute is kick-starting the next generation of climate change research at IGI. To date, IGI's climate change work has mostly focused on using genome engineering to help agriculture adapt to a changing climate. Building on that strategy, this gift provides initial funding to a series of new IGI projects that are aimed at developing scalable nature-based solutions to mitigate climate change. IGI Scientists Make Progress In Protecting Rice From Drought The Crop of the Future - Sorghum Grant: Technology Enabled Biological Carbon Capture and Sequestration- $21M, 8/2022
Peggy	Lemaux	RCNR - Plant and Microbial Biology	Lemaux's laboratory performs both basic and applied research focused primarily on cereal crops, like sorghum, wheat, rice and barley. The objectives of these studies are to better understand crop plants and to use that knowledge to improve their performance and quality. More recently efforts with colleagues have focused on bioenergy and climate change – especially in the versatile feedstock, sorghum.	Lemaux is working on a climate change **project** focused on carbon sequestration, funded through the Chan-Zuckerberg Initiative. Work will focus on editing Sorghum bicolor to improve photosynthetic efficiency and root biomass.

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				Lemaux is also working on a recently DOE funded Earthshot Energy Research Center project, led by Lawrence Livermore National Lab, that is focused on increasing photosynthetic efficiency and upregulating root exudates, studying how to anchor that increased carbon in the soil.
Isabel	Madzorera	Public Health - Berkeley Food Institute	Faculty Director at the Berkeley Food Institute. Madzorera's research interests include global health, nutrition, diet quality, maternal and child health, food systems, and global climate change.	
Ali	Mesbah	Chemistry - Chemical and Biomolecular Engineering	Using ML for food/agriculture, waste	2023 UCOP Proposal: Sustainable Plasma Processing of Biowaste to Reduce Adverse Climate Impacts of Fertilizer Production
Norman	Miller	L&S Social Sciences - Geography	Miller is focused on understanding hydroclimate processes and related impacts based on modeling and analysis of regional climate and hydrology and their impacts on water supply, demand and water quality, agriculture, and impacts to other sectors of society. This includes, coupled atmosphere- land surface-groundwater modeling from the site scale to continental scale; climate variability and change analyses; water and energy resources impacts, scaling theory; nonlinear coupling, feedbacks and sensitivities with climate systems; and high-performance computing.	Assessing impacts of social-ecological diversity on resilience in a wetland coupled human and natural system. Ecology and Society, 26(2):3, DOI: 10.5751/ES-12223-260203. GEOG 149A: Climates of the World. FALL 2023

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Meg	Mills-Novoa	RCNR - ESPM, ERG	Director, Climate Futures Lab As a human-environment geographer, her research focuses on the enduring impact of climate change adaptation projects. She collaborates closely with communities and practitioners to improve the design, implementation, and outcomes of adaptation projects that promote inclusion and equity. Most recently, she served as the outreach coordinator for the Climate Impacts Research Consortium at Oregon State University, a climate science-to-action team funded by NOAA. Climate Equity Environmental Justice Core Faculty	What happens after climate change adaptation projects end: A community-based approach to ex-post assessment of adaptation projects Intervention: The Invisible Labor of Climate Change Adaptation. Political Ecologies of Climate Adaptation **ENERES C266 001** Climate Justice (ESPM C160/ENERES C176) FALL 2023
Peter	Nico	LBNL - Resilient Energy, Water and Infrastructure Program	Nico is the Program Lead for the Resilient Energy, Water and Infrastructure Program. His research involves: • Enhanced weathering projects • Soil organic carbon processes • Carbon accounting models • CA SGC-funded Working Lands Innovation Center — negative emissions on CA crop and rangelands • Energy and water issues • Water quality issues with CCS	
Kris	Niyogi	RCNR - Plant and Microbial Biology, Innovative Genomics Institute	The lab's long-term research goals are to understand how photosynthetic energy conversion works in plants and eukaryotic algae, how it is regulated, and how it might be improved to help meet the world's needs for food, fuel, and carbon sequestration to fight climate change.	Plant Based CDR project Systems Analysis and Engineering of Biofuel Production in Chromochloris Zofingiensis, an Emerging Model Green Alga, $5.4M grant

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				"Technology enabled biological carbon capture and sequestration." Chan Zuckerberg Initiative Foundation (Co-PI, with PI Brad Ringeisen and several other co-PIs). "Systems engineering of Auxenochlorella protothecoides: from photosynthesis to biofuels and bioproducts." Co-PI, with PI Sabeeha Merchant "RESTOR-C: RESTORation of soil Carbon by precision biological strategies." Co-PI, with PI Susannah Tringe
Margiana	Petersen-Rockney	RCNR - ESPM	Rural livelihoods and climate change. How rural agricultural communities in the US respond and adapt to the impacts of climate change - from water scarcity and unpredictable weather to changing policies, markets, and migrations. Examples of published work here and here. Social-ecological systems and climate change. Management practices implemented on "working landscapes" and their impact on ecosystem functioning and biodiversity conservation. Example of published work here. Petersen-Rockney was an editor for a special issue on farming systems and adaptive capacity in *Frontiers in Sustainable Food Systems*, which can be found here.	Narrow and Brittle or Broad and Nimble: Comparing Adaptive Capacity in Simplifying and Diversifying Farming Systems."

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Matthew	Potts	RCNR - ESPM	Associate Director for Sustainable Development, Blum Center for Developing Economies, where he leads an interdisciplinary lab that focuses on the co-production by human and natural systems of ecosystem services and natural pathways for carbon sequestration. Potts is the Chief Science Officer at Carbon Direct Inc. where he leads an international science team working on decarbonizing the global economy. Specifically, Dr. Potts helps clients assess high quality carbon removal from managed landscapes and works to ensure climate actions are just and equitable. He also works closely with Carbon Direct's technology team to integrate science, software, and product	2023 UCOP Proposal: Proposal for Increasing CO2 Removal in California Through Science-Based Standards and Industry Engagement Criteria for High Quality Carbon-Dioxide Removal Redefining "abandoned" agricultural land in the context of reforestation. Frontiers in Forests and Global Change. Rates and drivers of aboveground carbon accumulation in global monoculture plantation forests.
Robert	Rhew	L&S Social Sciences - Geography	Trace gas fluxes. Rhew's research includes trace gas biogeochemistry, effect of land cover on trace gas exchange, biosphere-atmosphere interactions, and atmospheric pollution. Our focus has been on three groups of Biogenic Volatile Organic Compounds (BVOCs): halocarbons, reduced sulfur gases, and light hydrocarbons. We are increasingly interested in the impacts that agriculture, invasive species, and fire management have on the atmosphere.	Also: Communicating Climate Science (with Lawrence Hall of Science educators) NatRes24: Global Environment Theme House seminar (Fall and Spring)
Jim	Sallee	RCNR - Agricultural & Resource Economics,	Sallee is a public economist specializing in environmental and energy economics. His research analyzes policy design and market behavior in transportation and electricity.	Ongoing work includes: The Potential of and Problems with Carbon Markets in US Agriculture Retiring Heavy-Duty Trucks

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		Energy Institute @Haas		
Dave	Savage	L&S Biological Sciences - Molecular and Cell Biology, IGI	Savage is using CRISPR genetic screens and gene editing to optimize photosynthesis in crop plants for increased food yield and enhanced carbon capture.	
Whendee	Silver	RCNR - ESPM, Innovative Genomics Institute	Silver's work seeks to determine the biogeochemical effects of climate change and human impacts on the environment, and the potential for mitigating these effects. The Silver Lab is currently working on drought and hurricane impacts on tropical forests, climate change mitigation potential of grasslands, and greenhouse gas dynamics of peatlands and wetlands.	Silver is the lead scientist of the Marin Carbon Project, which is determining the potential for land-based climate change mitigation, particularly by composting high-emission organic waste for soil amendments to sequester atmospheric carbon dioxide. The Silver lab is investigating the potential of ground rock amendments to sequester carbon and lower greenhouse gas emissions via enhanced weathering. The Silver Lab is exploring the use of biochar alone and in combination with ground rock and compost amendments to sequester carbon and lower greenhouse gas emissions. Using machine learning for studies on greenhouse gas emissions and carbon sequestration in forests and on working lands.

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				Soil carbon sequestration in global working lands as a gateway for negative emission technologies Carbon-sink potential of continuous alfalfa agriculture lowered by short-term nitrous oxide emission events - Nature Communications Compost amendment to enhance carbon sequestration in rangelands Assessing the climate change mitigation potential from food waste composting - Scientific Reports
Jennifer	Sowerwine	RCNR - ESPM	Sowerwine's research and outreach program engages diverse stakeholders across the food system to examine barriers and co-create solutions to achieve healthy, equitable, culturally relevant, and sustainable food systems under changing climate conditions. In partnership with Tribes, immigrant and urban communities, she examines the cultural politics of resource access and governance, and the relationship between Indigenous and western science, bio-cultural diversity, food security, and health. She is also co-founder of the Karuk Tribe-UC Berkeley Collaborative, a partnership working to advance Tribal food sovereignty and eco-cultural revitalization of ancestral lands, practices and foodways. CEEJ Affiliate	Managing Cultural Foods in a Changing Climate: Karuk Agroecosystem Resilience and Cultural Foods and Fibers Revitalization Initiative: xúus nu'éethti – we are caring for it. Understanding the conservation challenges and needs of culturally significant plant species through Indigenous Knowledge and species distribution models. Conceptualizing Indigenous Cultural Ecosystem Services (ICES) and benefits under changing climate

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				conditions in the Klamath River Basin and their implications for land management and governance.
Brian	Staskawicz	RCNR - Plant and Microbial Biology, IGI	Director, IGI Climate and Sustainable Agriculture Program Staskawicz Lab conducts biological research for sustainable agriculture. Crop disease and drought, intensified by climate change, threaten global food security for our growing population.	2023 UCOP Proposal: Gene Editing Strategies for Drought Tolerance in California Crops Exploration and engineering of plant mechanisms and defenses can pave the path toward a more sustainable future. The work focuses on understanding the molecular basis of plant-pathogen interactions and immunity, expanding CRISPR-Cas genome editing technology in plants, and engineering disease resistant and drought tolerant crops for agricultural sustainability.
Eric	Stover	Law - Human Rights Center	Co-Faculty Director, Human Rights Center, Wildfire evacuations by ag workers	2023 UCOP Proposal: Protecting the Health, Safety, Economic Security of Agricultural Workers During Wildfire Evacuations
Susannah	Tringe	LBNL - Environmental Genomics & Systems Biology Division	Tringe is the Division Director, Environmental Genomics & Systems Biology Division **Mission**: Linking genome biology to ecosystem dynamics.	RESTOR-C: Center for the RESTORation of Soil Carbon by Precision Agricultural Strategies

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			Departments: BioSystems Data Science Comparative and Functional Genomics Molecular EcoSystems Biology	RESTOR-C will cultivate ways for plants and microbes to remove carbon dioxide from the atmosphere and stably store it for more than 100 years in the soil. Wetland microbiomes and GHG emissions
	USDA-NIFA AI Institute for Next Generation Food Systems (AIFS)	Engineering	Tarek Zohdi, Lead Berkeley researcher and Co-PI. A research center funded by the National Science Foundation (NSF) in partnership with the U.S. Department of Agriculture (USDA) and the National Institute of Food and Agriculture (NIFA) aims to improve U.S. food systems to address such issues as pandemic-driven food system security and safety; improving crop yield, quality and nutrition; decreasing energy and water resource consumption; and increasing production and eliminating food waste. Berkeley has extensive expertise in simulation technologies, which can be applied to create virtual food systems that will leverage the monumental leaps in high-performance computer simulation, AI and machine learning. This new effort will be centered around the concept of the 'Digital Twins' of physical reality — digital replicas of complex food systems that can then be inexpensively and safely manipulated, improved and optimized in a virtual setting.	The NSF award of $20M over five years will create the USDA-NIFA AI Institute for Next Generation Food Systems (AIFS), one of five AI institutes established to accelerate research and support the U.S. workforce. The center is led by a team at UC Davis in partnership with researchers from UC Berkeley, Cornell University, University of Illinois at Urbana-Champaign, the UC Division of Agricultural and Natural Resources (ANR) and the U.S. Department of Agriculture.
David	Zilberman	RCNR - Agricultural &	Marketing, biotechnology, water, risk management, biofuels, natural resources, agricultural and environmental policy, the	

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		Resource Economics	economics of innovation.	