

**California Department of Food and Agriculture
2013 Specialty Crop Block Grant Program**

Agriculture Education

Agriculture and Land-Based Training Association

\$115,773

Title: Farmer Education and Enterprise Development Project

Abstract: The purpose of the project is to assist aspiring, limited-resource farmers establish organic specialty crop farming businesses. Agriculture and Land-Based Training Association (ALBA) runs a 9-month intensive classroom and field-based educational curriculum. Once completed, farmers enter into the Organic Farm Incubator where they spend up to 5 years learning all aspects of running and farm business under experienced supervision. During this time, ALBA markets their goods through a food hub which allows them to focus on production and other aspects of business management and regulatory compliance. In the incubator, farmers access land and scale up their operation until they are ready to operate independently. By helping establish organic farming businesses, ALBA strengthens competitiveness in the specialty crop industry, improves income and opportunity among low-income farmers, increases local production and consumption of healthy produce and promotes ecological land management through sustainable farming.

AgSafe

\$210,782

Title: Food Safety Training for Supervisors and Farm workers

Abstract: Farm workers are the first line of defense in ensuring the safety and viability of California's specialty crops. Successful food safety programs hinge upon supervisors and workers understanding the critical role they play in executing the program. Consistent trainings are imperative in ensuring workers make the connection to how they impact food safety. In an effort to address the vital role workers play in the food safety scheme, AgSafe in partnership with the California Cantaloupe Advisory Board (CCAB), seeks to develop a 3-phase food safety training initiative. The first two phases of the initiative will train supervisors and workers in uniform food safety guidelines and cantaloupe-specific protocol. The final phase includes a train-the-trainer program for supervisors, designed to teach them how to provide on-going food safety training to workers. This 3-phase model could then be replicated and tailored to meet food safety training needs of other specialty crops in the future.

California Foundation for Agriculture in the Classroom

\$63,573

Title: Invasive Species Education

Abstract: California Foundation for Agriculture in the Classroom (CFAITC) will develop six one-page, two-sided fact sheets that will educate California teachers and students about invasive species, their effect on California specialty crops, and measures for control and prevention. Each fact sheet will feature a different invasive species that poses a danger to California specialty crops. The front page of the fact sheet will provide age-appropriate information about the species origin, traits, probable hosts, potential impacts, and prevention. The back page will feature lesson ideas for educators. CFAITC will disseminate the fact sheets through: 1) online availability; 2) print distribution to every California school; and 3) distribution at educator conferences. Fact sheet development is an established activity for CFAITC. Invasive species fact sheets will provide a unified message to Californians on behalf of all specialty crop farmers and ranchers.

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California Leafy Greens Marketing Agreement

\$247,445

Title: California Leafy Greens Industry Food Safety Training Program

Abstract: The California Leafy Greens Marketing Agreement (LGMA) proposes to develop a food safety training program for the California leafy greens industry. Food safety training for workers is required under LGMA's best practices (hereafter referred to as "metrics"), but most training programs currently in use are not uniform in content nor specific to standard industry practices and do not address the need for train-the-trainer programs. This project will create an industry-wide program with six individual modules that address all activities in accordance with the metrics. Modules include: 1) conducting risk assessments; 2) cleaning and sanitizing equipment; 3) employee sanitation and hygiene; 4) testing and sampling procedures; 5) managing personnel and harvesting operations; and 6) conducting train-the-trainer course. Participants completing all modules will be recognized as qualified to perform the activities specified in the metrics.

Center for International Trade Development, Fresno

\$111,458

Title: A Business of Details for CA Specialty Crops

Abstract: The "A Business of Details for California Specialty Commodities" project aims to build on Center for International Trade Development (CITD), Fresno's success in developing new exporters of California's top 20 specialty commodities. This project will focus on updating the widely used U.S. Department of Agriculture, Agricultural Marketing Service (USDA-AMS) export training video and workbook for "A Business of Details" from 1997. No other training video that explores the full export cycle for a specialty commodity is as widely used today. Significant export logistical and regulatory changes have taken place in the past 14 years, and 100+ export training agencies are performing a disservice by presenting old information. This project will assess the needs of experience exporters, review and update video and workbook curriculum with agricultural industry cooperators, and produce a new "A Business of Details" video and workbook with online components for dissemination through USDA, and California agricultural cooperators and specialty commodity groups.

Center for Land-Based Learning

\$315,973

Title: California Farm Academy Incubator Program Development

Abstract: The newly established California Farm Academy (CFA) beginning farmer training and incubator program seeks additional funding to develop its CFA Farm Incubator, providing expanded services, support and market access to new specialty crop growers. The CFA Incubator program will fill a remaining gap in the farmer career pathway by providing an affordable startup option for beginning specialty crop growers. The Farm Incubator program ensures a supervised farming situation, mentoring, market development and assistance with the transition to a long-term agricultural operation. The specialty crop industry will benefit as 20-30 farmers participate annually in the CFA Incubator program, thereafter joining an existing operation or starting their own farm business. The CFA Incubator program will hold advanced trainings that area growers can attend, and serve as a clearinghouse for farm jobs, farmers seeking skilled managers, and be a model for other agencies assisting beginning farmers.

Community Alliance with Family Farmers

\$331,118

Title: On-Farm Food Safety Plans for Small-Scale Specialty Crop Growers

Abstract: Community Alliance with Family Farmers (CAFF) proposes to continue its successful Specialty Crop Block Grant funded food safety outreach program for minority-owned and smaller specialty crop farms, which is targeted to direct-market growers. CAFF will conduct workshops in

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cooperation with a variety of other organizations as they expand to more regions of the state, and CAFF will continue to assist individual farmers with on-farm food safety plans. CAFF will develop simplified food safety metrics focusing on the key issues in the specialty crops of greatest concern so that even the smallest farmers can incorporate these into their food safety plans; CAFF will continue to work with Cooperative Extension to see that these are translated into other important languages. CAFF will widely disseminate new Food and Drug Administration regulations to create appropriate GAPs for Food Safety Modernization Act-exempt small farmers and disseminate those. CAFF will continue to improve the material on their web site and work with the Produce Safety Alliance to create a culture of food safety.

Sustainable Agriculture Education

\$252,029

Title: Revitalizing Specialty Crop Agriculture in the Valley of the Heart's Delight: a Model for Linked Urban-Rural Sustainability

Abstract: Sustainable Agriculture Education (SAGE) produced the Coyote Valley Agriculture Feasibility Study, which assessed the potential for creating a sustainable agriculture resource area within the 7,400-ac Coyote Valley (CV), the last remaining farmland of the "Valley of the Heart's Delight" just minutes from San Jose. Funded by the California Coastal Conservancy, the Study investigated existing conditions and concluded that it is feasible to sustain agriculture and conservation in the CV, provided stakeholders take significant, strategic action. In this project, SAGE will work with key partners to implement the Study's Phase 1 recommendations for fulfilling its long-term vision: The CV is home to a regionally significant agricultural resource area that contains important farmland and key habitat; supports livelihoods for its farmers, ranchers and agricultural employees; provides healthy food and a recreational amenity for Bay Area communities; and protects important ecological and cultural resources of the region.

The Regents of the University of California, Davis

\$138,665

Title: Online Continuing Educational Resources for Ornamental Specialty Crops Producers

Abstract: The University of California Nursery & Floriculture Alliance (UCNFA), a statewide outreach program of University of California (UC) faculty and UC Cooperative Extension Specialists and Advisors, serves the continuing educational needs of California's nursery and floral specialty crops producers. UCNFA propose to update existing educational materials and make them available to this workforce in a more time and cost-effective web-based format to facilitate maintenance of the skills needed to keep this specialty crops segment competitive. Funding will support adding English and Spanish narration to the current presentations on basic horticultural topics to create videos for use as online modules maintained on the UC Agriculture and Natural Resource Learning Management System website. Online quizzes and evaluations will measure subject retention and workshop value. Funds including 10% effort for the Project Director; support from UC Davis Plant Sciences Department endowments and UC Agriculture and Natural Resources assets comprise UC Davis' 87% match.

The Regents of the University of California, Davis Agricultural and Resources

\$163,720

Title: Establishing and Scaling Up Safe and Profitable Cottage Food Operations by California Specialty Crop Growers

Abstract: This project supports specialty crop producers taking advantage of the recently enacted Cottage Food Act to enhance their farms' viability. In year 1, University of California Cooperative Extension (UCCE) will conduct two workshops in each of 5 Northern California (CA) regions with support from local stakeholder groups to train 150 specialty crop producers regarding: safe production of processed foods; packaging and labeling; and the Cottage Food Act and related zoning and environmental health regulations. Workshops during year 2 will provide information about marketing and business planning, to

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help cottage food operators maximize their viability, and potentially expand their businesses by having their own registered food facility or obtaining the services of a co-packer. Two case studies of food businesses that process specialty crops will be developed and discussed to assist workshop participants in developing their business plans. Some specialty crop producers will attend the 2015 national specialty food trade show.

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Environmental Stewardship and Conservation

Cal Poly Pomona Foundation, Inc.

\$188,286

Title: Towards sustainability of lettuce production through breeding approaches to increase water and nitrogen use efficiency

Abstract: Lettuce is a \$1.5 to 2.0 billion crop in California whose production requires substantial irrigation and supplemental nitrogen fertilizers. Water is an increasingly critical and unpredictable resource and nitrogen fertilizers are known contributors to groundwater contamination and greenhouse gases. To conserve resources, minimize environmental impact and increase the long-term sustainability of the lettuce industry, both water and nitrogen must be used more efficiently. This project aims to improve Water Use Efficiency (WUE) and Nitrogen Use Efficiency (NUE) through breeding approaches. This research will lead to the development of lettuce cultivars with improved WUE and NUE, will contribute molecular markers that can be used in other breeding programs, and will ultimately lead to understanding the biological basis for improved WUE and NUE.

California Strawberry Commission

\$225,662

Title: Creation of a Water Quality and Nutrient Management Training Program for California Strawberry Growers

Abstract: The California Strawberry Commission (CSC) will create an irrigation and nutrient management training program to improve water quality management practices on California strawberry farms. This program will fill a substantive need for training on strawberry-specific irrigation and nutrient best management practices critical to improving water quality in strawberry production regions of California. The goal of the program is to equip growers and irrigators with knowledge and skills necessary to establish and operate efficient strawberry irrigation systems that conserve water, apply nutrients effectively, and enable the grower to comply with water quality regulations. The curriculum will include two classes focused on irrigation system design, and two classes on irrigation system operation. By the end of the grant, the project aims to conduct 40 training classes and engage 280 strawberry farms in the training program, reaching 70 percent of the California strawberry industry.

Rancho California Water District (RCWD)

\$81,149

Title: Temecula Valley Winegrower Research and Demonstration Project

Abstract: The Project focuses on the use of technologies for implementing Regulated Deficit Irrigation (RDI) as a best management practice for enhancing water use efficiency in local winegrowing operations while improving the quality of red wine grape varieties. The Rancho California Water District (RCWD), University of California, and the Temecula Valley Winegrowers Association have partnered with a history of success on public outreach and research projects, providing the agricultural community with education and technical assistance. The research component includes: 1) Research the quantity of water required for producing high quality red wine grapes in the Temecula Valley; 2) Monitor soil salinity under varying irrigation conditions to gauge its effects on red wine grape quality; 3) Demonstrate to local growers methods employed for implementation of an effective RDI program; and 4) Transfer research knowledge gained to the local winegrowing community through a demonstration effort consisting of three workshops.

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The Regents of the University of California, Davis

\$376,424

Title: Development of a Nutrient Budget Approach and Optimization of Fertilizer Management in Walnuts

Abstract: This project seeks to empower walnut growers to be better environmental stewards while increasing management efficiency. Growers have technology to match timing and amount of nutrients applied with the needs of the crop, but lack fundamental research on how much is needed when. This project aims to quantify the monthly nutrient needs of walnut orchards, estimate soil nutrient losses and contributions, and improve grower nutrient assessment techniques by revisiting leaf critical values, exploring optimum nutrient ratios, and revising leaf sampling for improved accuracy. The findings will be communicated to growers by a choice support mobile application to translate generalized findings to the specific site, and with publications and presentations on revised beneficial nutrient assessment practices. This will enable growers to apply only as much nutrients as needed, when needed, decreasing air and water pollution that results from over-fertilizing.

The Regents of the University of California, Davis

\$352,941

Title: Developing Soil Fumigation with Reduced Application Rate in Low Permeability Tarp Mulched Raised-Bed System

Abstract: With the loss of Methyl Bromide (MeBr) and increasingly strict regulations on emissions of alternative fumigants, California (CA) strawberry producers are facing challenges in pest control including critical pathogens and resident weeds that have become increasingly troublesome. Totally Impermeable Film (TIF) which can effectively retain fumigant in soil and reduce emissions may allow reduced fumigant rates to achieve optimal pest control target; however, the effective rate in TIF tarped field is unknown. It is also unclear if the higher fumigant retention in beds may result in higher emission through uncovered furrows. The aim of this project is to control soil-borne pests while reducing fumigant emissions by combining low fumigant rate and TIF in raised beds systems. Additionally, a new plastic film made from the Recycled Plastics from Fields (RPF) will be tested. The findings will benefit the economic and environmental sustainability of the \$2.0 billion CA strawberry industry.

The Regents of the University of California, Davis

\$354,027

Title: Microcalorimetry for rapid assessment of specialty crop salinity tolerance

Abstract: Currently, there is limited information regarding salt tolerances for a wide range of specialty crops since testing for salt tolerances is resource and time intensive. Isothermal microcalorimetry can be used to examine total metabolic rates of plant tissue samples and to study effects of a wide variety of naturally occurring or artificially added factors, including salinity, on those rates. This project will use this procedure to develop a novel method to rapidly (hours or days) assess the salinity tolerance of specialty crops species. The first two years will be used to develop and validate the method. During the third year experimental field demonstrations will be established. Measureable benefits will be in pioneering a new scientific method; and by identifying and disseminating previously unreported salt tolerances for specialty crops. Expanded knowledge of salinity tolerance will improve sustainable production practices by allowing for increased use of recycled water for irrigation.

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The Regents of the University of California, Oakland Cooperative Extension

\$265,474

Title: Online Irrigation and Nitrogen Management Tool for Cool Season Vegetables

Abstract: Cool season vegetables require high inputs of water and nitrogen fertilizer, which has resulted in nitrate contamination of ground water supplies on the central coast. Coastal growers are now under strict water quality regulations, and may face future restrictions on the use of nitrogen fertilizer. This project will increase capabilities of CropManage (CM), an innovative and easy-to-use web-based tool that assists growers in matching water and fertilizer rates to the needs of their crops as well as track inputs by field. This will expand CM for additional cool season vegetables by collecting field data and developing algorithms that will be integrated into the software. Immediate outcomes would be increased numbers of farmers implementing weather-based irrigation scheduling and soil testing. Potentially this project will increase efficient use of water and nitrogen fertilizer, increase grower compliance with water quality regulations, and enhance safety of drinking water supplies.

The Regents of the University of California, Santa Cruz

\$268,988

Title: Improving Water Quality in California Nursery Crops using Polyacrylamide

Abstract: Production of nursery crops impacts water quality when nutrients, pesticides, and sediment in tailwater moves off-site to surface water bodies. This project will assist the California nursery industry to mitigate water quality impacts with an easily adoptable and inexpensive method. Polyacrylamide (PAM), a sediment flocculant and erosion control polymer, is used safely in agriculture and other industries. In this project, a novel approach will be developed to use PAM as a potting soil amendment in potted plants for mitigating water pollution in nurseries. Optimal PAM rates to reduce sediment and nutrient loss from pots will be developed, and compatibility with nursery crops will be ensured. The impact on water quality will be evaluated and demonstrated in nursery field trials. This information will be transferred to nursery growers via publications and meetings.

USDA, Agricultural Research Service

\$291,629

Title: Biobased matrix with encapsulated microbes as substitute for synthetic fertilizers and pesticides

Abstract: United States Department of Agriculture (USDA) scientists in Albany, California have developed a novel matrix that can substitute for fertilizers and pesticides. This matrix improves soil health and reduces ground water contamination. The matrix is made from gypsum and starch and encapsulates metabolically active microbes. These microbes secrete enzymes and other useful compounds. These help plants fix nitrogen, produce humic acids, and solubilize sulfates, phosphates, and potassium. This results in stimulated plant growth, healthier root-systems, and improved protection from pests. The matrix is produced in granular form and preliminary green house and small-scale field trials have shown improved plant growth and yields. This project aims to further develop and optimize matrix formulations for onion, strawberry, and tomato crops. It is also in the plan for this project to increase production of the matrix formulations to pilot scale. In addition, this project will conduct large-scale field trials with the onion, strawberry, and tomato growers.

USDA, Agricultural Resource Service

\$339,218

Title: Salt-Tolerant Lettuce and Spinach Varieties

Abstract: Salinity is a major constraint to lettuce and spinach production in all major production areas in California. On the central coast, seawater has intruded into ground water supplies due to continuing overdraft conditions. In the Central Valley, salts accumulate in soil because irrigation water from the Sacramento-San Joaquin Delta is contaminated with brackish water from the San Francisco Bay, a

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shallow water table, and lack of an adequate drainage outlet. In the Imperial Valley, a desert region with less than three inches of rain annually, growers rely on the salty Colorado River water for irrigation. Global warming promotes water transpiration from plants and evaporation from soil increasing salt accumulation in soil. To screen and develop salt-tolerant lettuce and spinach germplasm and cultivars to adapt to the changing environment is proposed. Successful completion will improve profitability and sustainability of lettuce and spinach specialty crops in California.

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Food Safety

The Regents of the University of California, Davis, Center for Produce Safety **\$280,483**

Title: Evaluation of multiple disinfection methods to mitigate the risk of produce contamination by irrigation water

Abstract: The Center for Produce Safety (CPS) will partner with the University of Tennessee (UTN) to explore water used for frost protection and irrigation, one of the most likely points of pathogen contamination during fruit and vegetable production. Previous studies have focused on chemical rather than microbiological water-quality parameters. Consequently, a knowledge gap exists regarding surface water sanitary quality and the risks associated with the timing and method of application. In response to proposed standards for surface water quality, the adequacy of three in-line methods for disinfecting frost protection and irrigation water will be evaluated. An ultraviolet light module, a chlorine dioxide injection system, and a peroxyacetic acid injection system will be evaluated based on the reduction of indicator microorganisms (*E. coli* and fecal coliforms) and the presence or absence of pathogens (Shiga Toxigenic *E. coli* [STEC]) in a double-cropping system with strawberry and cantaloupe. Disinfection techniques will be compared to non-disinfected, pond water with cattle access and populations of all organisms of interest. Populations of microorganisms will be evaluated pre- and post-treatment. Plant tissue will be sampled during flower, early fruit, peak fruit, and late harvest to determine transfer rates of foodborne pathogens, yield and quality characteristics.

The Regents of the University of California, Davis, Center for Produce Safety **\$130,185**

Title: Assessing postharvest food safety risks and identifying mitigation strategies for foodborne pathogens in pistachios

Abstract: In the past decade, nuts and nut products have been established as potential sources of foodborne illness. Outbreaks associated with the consumption of raw almonds, in-shell hazelnuts, peanut butter, pine nuts, and walnuts have been documented in North America and Australia. Until recently very little was known about the ecology of foodborne pathogens in nut production and processing environments, impeding the development of targeted commodity-specific intervention programs. The proposed research builds on recent research at the University of California, Davis (UCD), pertaining to the survival of *Salmonella* in pistachios. Points during postharvest handling of pistachios where foodborne pathogens may be reduced, controlled or amplified will be identified. These data and industry expert opinion will be used to construct a pistachio risk model to estimate risks from harvest to storage. This model will allow the pistachio industry to develop harvest management strategies that reduce the potential for product contamination. Characterization of the heat resistance of foodborne pathogens in inoculated pistachios under dry and moist heat conditions will provide the scientific foundation for process validation in the pistachio industry.

The Regents of the University of California, Davis, Center for Produce Safety **\$324,403**

Title: Effect of physiochemical and biological parameters on survival, persistence and transmission of norovirus in water and on produce

Abstract: The Center for Produce Safety (CPS) will partner with the University of Florida (UFL) to explore noroviruses, a leading cause of diarrheal disease in the world. Many of the infections begin with the consumption of contaminated food and water. Currently, it is widely known this virus is present in the natural environment, but it is unknown what environmental factors are able to decrease norovirus survival in irrigation waters or on produce and therefore prevent disease. In order to address this multi-faceted problem, this project brings together experts in the fields of food safety, foodborne disease and

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noroviruses. The proposed studies will test several conditions associated with irrigation water quality on their ability to impact norovirus survival in the water, on produce and transmission to a host. The identification of factors that reduce virus survival and/or disease will allow for the development of food and water intervention and treatment processes to reduce virus contamination and thus reduce the incidence of norovirus disease.

The Regents of the University of California, Davis, Center for Produce Safety **\$162,681**

Title: Remediation and recovery measures to expedite plant or replant of vegetables following soil contamination by *Salmonella enterica*

Abstract: Producers of fresh fruits and vegetables need practical and sustainable methods to minimize the survival of human pathogens, such as *Salmonella*, in production soil. Much of the research effort to date has focused on long intervals following manure application and process controls for composting and thermal pasteurization treatments during pelletizing. Despite best intent in setting composting standards, contaminated compost applied to production fields remains a significant problem. Contaminated soil has resulted in hundreds of acres of abandoned crop due to *Salmonella* in consecutive years, especially with lettuce and salad greens. Remediation and soil recovery treatments are needed to effectively shorten the time interval before replanting of such high value vegetables without fear of losing another crop to preventable sources of contamination. This research will focus on optimizing the existing knowledge in low-residue cover cropping, solarization, and field flooding for remediation of soils contaminated with chicken manure known to harbor *Salmonella*. The anticipated outcome is a set of grower options for integrated management of contaminated soil that may be extended to other pathogens and sources of contamination such as flooding, domestic animal grazing of crop residues, and large numbers of animal intrusion to croplands.

The Regents of the University of California, Davis, Center for Produce Safety **\$274,693**

Title: Food safety risks at the fresh produce-animal interface: Identifying pathogen sources and their movement on diversified farms

Abstract: The Center for Produce Safety (CPS) will partner with North Carolina State University (NCSU) to explore the direct application or indirect transfer of animal manure into the produce farm environment as a potential source of fresh produce contamination. One knowledge gap that exists is in ascertaining the specific metrics and consequences of proximity at the interface of agricultural production involving food animals and fresh produce. Without this information it is difficult to prescribe practical risk-reduction practices and expect producers to heed those measures. This is especially true on diversified farms where the integration of growing animals and fresh produce in close proximity predisposes the fresh produce to contamination by animal shed pathogens. This project will 1) Identify sources of *Salmonella*, STEC O157:H7 and non-O157:H7 STEC on diversified farms and determine the impact of buffer distance on their movement at the animal: fresh produce interface; 2) Validate the outcome of the first objective by conducting a controlled study to determine source and movement of indicators and pathogens at the animal: produce interface on the Piedmont Agriculture Research Station. The study will result in identifying risk gaps and will help the fresh produce industry strategize control measures to prevent fresh produce contamination.

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The Regents of the University of California, Davis, Center for Produce Safety

\$291,023

Title: Validation of geospatial algorithms to predict the prevalence and persistence of pathogens in produce fields to improve GAPs

Abstract: The Center for Produce Safety will partner with Cornell University (CU) to explore foodborne pathogen contamination of produce in the production environment. There is a need for further development of science-based approaches to assist growers in minimizing the risk of produce preharvest contamination. The purpose of this project is to validate a global information system (GIS) based modeling tool that identifies specific locations and times on a produce farm where the prevalence of foodborne pathogens is elevated and, as a result, the risk of produce contamination is higher. This GIS tool can be applied to any location because it utilizes a farm's unique combination of landscape characteristics (e.g., proximity to domestic animal operations), soil properties (e.g., soil moisture), and climate (e.g., precipitation) in its prediction process. The implementation of GIS by the produce industry will increase the understanding of factors that promote foodborne pathogen prevalence and persistence on fields, and will assist growers in focusing their food safety efforts using risk-based strategies. Growers will be able to target areas within their farms that are at high risk for contamination and implement more informed field management decisions and science-based strategies (e.g., alteration of cropping schemes) to limit potential produce contamination.

The Regents of the University of California, Davis, Center for Produce Safety

\$150,745

Title: Evaluation of risk-based water quality sampling strategies for the fresh produce industry

Abstract: The Center for Produce Safety (CPS) will partner with the University of Arizona (UA) to develop a risk-based approach for sampling of irrigation waters used for produce production to minimize the risk of crop contamination by foodborne bacteria. Irrigation water has been implicated in a number of outbreaks associated with fresh produce. Currently there are no scientific methods for determining where and how often water quality sampling should take place in constructed irrigation systems typical of Southern California and Arizona. A risk assessment will be used to consider factors which are known to influence contamination of surface waters including rainfall, watershed characteristics (e.g., landscape features, urban development), the type of produce and the irrigation method (e.g., spray vs. flood) to develop recommendations for risk-based sampling strategies for growers. Additionally, since rainfall plays a significant role in surface water quality, a user-friendly application will be developed for use with mobile phones or other hardware to aid in determining the need for risk-based sampling based on downloadable local weather information. This study will offer recommendations towards risk-based sampling strategies (frequency, timing, location, volume) for *Escherichia coli* (*E. coli*) indicator bacteria in irrigation waters that provide the greatest risk reduction to produce.

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Market Enhancement

Alameda County Deputy Sheriffs' Activities League **\$82,900**

Title: Bay Area Urban Agriculture Marketing Association

Abstract: The project will strengthen the growth and development of urban production farms in the San Francisco Bay Area in order to increase access to healthy, affordable, culturally appropriate specialty crops in underserved low-income communities. The project will recruit small urban farms to join the Bay Area Urban Agriculture Marketing Association (BMUAMA) for product aggregation, distribution to member farms, and market expansion. The project will provide training, technical assistance, networking opportunities, and best practices for urban farmers. The project will build on relationships between urban farms and low-income consumers to provide Supplemental Nutrition Assistance Program (SNAP) outreach and nutrition education; increase the number of low-income consumers enrolled in SNAP benefits; and increase knowledge about the importance of California Grown fruits and vegetables to a healthy diet.

American Pistachio Growers **\$294,724**

Title: Baking Seminars for Food Professionals in Japan and South Korea

Abstract: American Pistachio Growers (APG) and the California Dried Plum Board (CDPB) are partnering to host a series of seminars promoting pistachios and prunes as ingredients for the baking industry in Japan and South Korea. These target professional bakers will educate them on the technical aspects and nutritional benefits of cooking with both products. Combined, the baking industry in Japan and South Korea was valued at U.S. \$36.7 billion in 2012, making the region one of the most lucrative markets in the world for baked goods. APG and CDPB will create new industrial demand for pistachios and prunes in these key markets and will help to ensure the economic viability of the two valuable specialty crop industries in California.

Buy California Marketing Agreement **\$1,000,000**

Title: "California, Always in Season"

Abstract: The Buy California Marketing Agreement (BCMA) and the California Travel and Tourism Commission (Visit California) will coordinate a paid media program with Food & Wine, a national food and wine publication that goes beyond mere eating and drinking, to highlight the seasonality, diversity, and uniqueness of "California Grown" specialty crop products. The media program will leverage the baseline culinary campaign that currently exists as part of Visit California's domestic /global marketing efforts allowing for additional owned/earned media visibility through specialty crop specific content development. This campaign, "*California, Always in Season,*" will link the iconic imagery and marketing of California as travel destination with the specialty crop products grown and harvested in the state.

California Association of Nurseries and Garden Centers **\$237,000**

Title: Inbound Marketing and Mobile Gardening Application

Abstract: California Association of Nurseries and Garden Centers (CANGC) is a 101 year old non-profit trade association tasked with promoting and protecting the interests of the California nursery industry. CANGC is applying for a grant to get young people into gardening. Today's youth is attached to their electronic devices and not into gardening. In fact, today's young consumer does not know how to select or grow a plant. The mobile revolution is taking hold of marketing and a new consumer is emerging, but the nursery and garden center is not attracting this consumer. Retail trends show that the consumer of today is

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using brick and mortar stores as showrooms and doing most of their purchasing online or on their mobile device. Due to the nature of the nursery business and the variability in product selection this is not a preferred business model. This project plans to utilize modern marketing techniques and mobile media to attract and transition a new set of consumers from urban dwellers into urban farmers—ultimately increasing nursery product sales.

California Cut Flower Commission (CCFC)

\$224,350

Title: Sustaining California's Flower Farmers through Sustainability Certification

Abstract: Low cost imported flowers from South America are putting tremendous competitive pressure on the California cut flower industry. Research and experience by California farmers indicate they must differentiate themselves by telling their unique sustainability story to the U.S. consumer and have a third party certification program designed exclusively for them to validate their high standards. The objectives of this project are to develop and implement a practice and performance-based certification program to: (1) enhance the marketability and competitiveness of California's flowers through a certification program that educates consumers and buyers on the unique sustainability practices of California's farms; (2) encourage California's farms to expand stewardship and natural resource conservation by providing tools that assist them with continuous improvement for environmental and financial performance. The outcomes of the project will be a fully implemented sustainable certification program for California cut flowers and greens.

California Fig Advisory Board

\$237,000

Title: Creating Value-Added Demand for California Figs - Foodservice/Food Manufacturing Ingredient Education Program (California Fig Ingredient Program)

Abstract: 88%. This is a big percentage that translates into big concern for California fig growers. Imports of figs and fig products into the U.S. have increased 88% over the base year of 2007-2008. The continued influx of imports has had a devastating effect on this U.S. specialty crop, threatening the economic viability of fig growers, processors, suppliers and workers. Due to this aggressive import pressure, the California fig industry requests funding to create a comprehensive ingredient education program to educate key target audiences about domestically grown- and produced-figs and fig ingredients and the importance of choosing figs from California.

California Flower Growers Cooperative (CFGC)

\$126,456

Title: Removing barriers to commerce to reverse market share decline

Abstract: California produces 75%+ of U.S. cut flowers but U.S. cut flowers have dropped from 60% of U.S. wholesale sales in 1989 to 29% in 2011 as imports (mainly Colombian) grew. This keeps prices stagnant (up just 2.7% over the past decade). Further, most South American imports enter a single port of entry (Miami) and are aggregated in warehouses with which buyers deal directly. This supply chain structure allows buyers to deal efficiently with a few sellers offering wide selections rather than multiple sellers for California flowers. This project would create an online marketplace allowing buyers and California farmers a single point of contact for all California varieties to ease this burden. The industry must address this to remain viable and stop further market share loss; accordingly the California Flower Growers Cooperative (CFGC) is supported by the California Cut Flower Commission, representing all California cut flower farmers. As a farmer-owned cooperative, any profits would flow back directly to the farmers and benefit only them. CFGC membership is open to all California cut flower farmers.

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Center for Ecoliteracy

\$239,495

Title: CA Food for CA Kids

Abstract: Cooking with California Food introduces the concept of the dynamic 6-5-4 School Lunch Matrix, based on six dishes students know and love, five ethnic flavor profiles, and four seasons. It offers ideas for adding more fresh, local, healthy foods to school lunches; helps meal services devise an appealing variety of menus around dishes that children already prefer; honors California's rich history and cultural heritage; and describes a tested plan for effective professional development for food services staff. The Center for Ecoliteracy (CEL) proposes a targeted marketing campaign to increase the use of specialty crops in school meals by providing nutrition service directors and district personnel with the recipes and technical expertise they need to procure, prepare, and serve specialty crops throughout California schools. This project will also design and launch a communications strategy to build enthusiasm for locally grown food in school meals with parents and students.

Ecology Center

\$399,258

Title: Market Match Consortium

Abstract: The Market Match Consortium (MMC) is a statewide coalition of farmers' market (FM) operators and organizations working to enhance the competitiveness of California specialty crops (CSCs) by driving California's 8-to-17 billion dollars in Supplemental Nutrition Assistance Program (SNAP) benefits (aka CalFresh or Electronic Benefits Transfer (EBT)) directly to CSC growers. To increase CSC market share, the MMC promotes the purchase of FM CSCs to CalFresh recipients, engages in CalFresh enrollment, expands the number of FMs accepting EBT, and incentivizes participants to spend their benefits on CSCs at farmers' markets by offering a Market Match on CSC purchases. One hundred percent of revenue received goes directly to the CSC growers. To open this \$8B-\$17B market for CSC growers, in 2014 the MMC will: (1) promote the purchase of CSCs to 500,000 CalFresh recipients; (2) prescreen 3,500 new CalFresh participants; (3) help 20 new FMs accept EBT; and (4) partner with 15 organizations representing 150 FMs and 1,140 CSC growers for over \$1M in farm-direct CSC sales.

North Coast Opportunities, Inc.

\$390,021

Title: NCO Food Hub Project

Abstract: North Coast Opportunities (NCO) will work with California specialty crop growers to create a distribution hub that will make it possible for them to market and distribute their produce more efficiently and economically while retaining brand and location identity. The Food Hub will increase market access for specialty crop producers, supporting their economic vitality and linking Mendocino and Lake Counties to the emerging North Coast Regional Food System Network (NCRFSN). Many local producers currently cannot access mainstream markets because they lack infrastructure for aggregation, processing, and distribution. The Food Hub Project will build on existing centralized resources, including warehouse and limited cold storage, a commercial kitchen, a refrigerated delivery truck, and an online ordering system. The Food Hub will assess and address producer needs in terms of technology, storage, packaging, marketing, and distribution to facilitate their participation in the Food Hub.

Sacramento Area Council of Governments

\$387,038

Title: Food System Multipliers for Specialty Crops in the Sacramento Region

Abstract: As with much of California, agriculture in the Sacramento region is not only highly productive and diverse; it is a major economic driver. In 2011, the farm-gate value for all agricultural products in the six-county Sacramento region was \$1.8 billion, with specialty crops accounting for approximately \$929

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million—nearly 51 percent. However, agriculture is often overlooked by economic development groups due to a poor understanding of the industry's economic impacts. To address this, Sacramento Area Council of Governments (SACOG) proposes estimating a set of economic multipliers under various conditions that will capture the economic impact of specialty crops up and down the supply chain. The model will include revenue, input purchases, taxes, job creation and regulatory costs. California specialty crop stakeholders are seeking this tool to provide much-needed data to support agricultural investments and appropriate policies.

Solano Grown

\$55,120

Title: Solano Grown Online Farmer's Market

Abstract: This project proposes to expand a newly developed online Farmers Market outlet for Solano County specialty crop producers. Solano Grown, a cooperative marketing organization for Solano County growers, is working to promote and encourage purchases of local specialty crop products. This project would leverage those promotional activities by providing an online market place for consumers to purchase the products directly.

Sunsweet Growers, Inc.

\$400,000

Title: Building the Dried Plum Market with Younger Consumers with Dried Plum Granola

Abstract: California prune sales are stagnant. Most prune consumers are age 55+; market growth and stability depends on attracting younger consumers. This project would fuel sales of California prunes to consumers aged 25-45 with the introduction of a new granola product that is 51% prune bits (from low-value small and blemished prunes, 100% California), 9% other fruit, and 40% granola. Granola is popular with the target age demographic; U.S. sales grew 13% in 2012 alone. Sunsweet Growers, Inc. (Sunsweet) seeks funds to conduct public relations campaigns and online, print and TV advertising to support new product introduction efforts focused on the prune content. Sunsweet forecasts this will result in \$2 million+ in incremental returns over bulk prune prices by Year 3; as a farmer cooperative, all "our" returns flow back to the growers and benefit only them. Sunsweet represents over 300 prune growers and 70% of U.S. prune sales; accordingly this project is supported by the California Dried Plum Board, which notes benefits to all California prune growers by attracting younger consumers to prunes.

The Regents of the University of California, Davis

\$142,425

Title: Building a Farm Trail: Developing effective agritourism associations to enhance rural tourism and promote specialty crops

Abstract: This project will provide training, technical assistance and networking opportunities for community agritourism associations engaged in collaborative marketing of specialty crop agritourism enterprises in order to enhance the economic viability of these growers and develop tourism in their rural communities. The project representatives will work with marketing, tourism and economic development professionals in year one to assist three newly-formed specialty-crop community agritourism associations in contiguous California regions to build effective grower-based organizational structures, to develop community partnerships, to develop, publish, distribute and promote farm trails maps, and to hold collaborative events that promote California specialty crops to Californians. In the second year, the project will support the growth of a collaborative network for the many California community and county-based agritourism associations by organizing a statewide summit, a communications network and a resources library.

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\$99,484

Title: Making the California Women, Infants, and Children (WIC) Program Work for California Farmers and WIC Program Participants

Abstract: The Women, Infants and Children (WIC) Program Farmers' Market Nutrition Program permits eligible families to receive \$20 in vouchers to purchase fresh fruits and vegetables at WIC-approved Farmers' Markets. Just under \$3 million was expended in this program in 2010 in California. However, over \$83.5 million is expended annually through the California WIC Program for participants to purchase fresh, frozen, or canned fruits and vegetables using cash-value vouchers (CVV). Presently only a small fraction of these CVV are redeemed through farmer marketers, resulting in great loss in potential revenue to California's specialty crop producers. This project proposes to analyze the California WIC Program with respect to CVV for fruits and vegetables, including conducting scientific surveys of WIC Program participants and farmers who participate and do not participate in the WIC Program. Based upon results of the analysis, strategies for increasing the share of fruits and vegetables purchased by WIC Program participants direct from farmers will be recommended.

Valley Vintners Association

\$357,000

Title: Recovering Returns on Sonoma Valley AVA Winegrapes

Abstract: Sonoma Valley Vintners Association (SVVA) represents nearly all growers/vintners in the American Viticultural Areas (AVAs) of Sonoma Valley (SV) in Sonoma County. The economy has hurt returns as consumers switch to non-AVA labeled wines; the average winegrape prices for SV dropped 6.19% since 2009 due to lower wine prices. Research shows consumers pay more if they see value; a 2009 Wine Opinions study shows SV wines are well valued in the wine community but there is a major need to promote this to consumers and the trade. SVVA spent ~\$50k on research and consulting to define the issue and develop messaging, target audiences, creative materials, and approaches; SVVA seeks assistance to sell more wine as SV-AVA labeled rather than bulk including website redesign, social media and email campaigns, and print and online ads. As this kind of value messaging benefits all Sonoma and California growers, this project is supported by the Sonoma County Winegrape Commission, Sonoma County Vintners, California Association of Winegrape Growers and the California Wine Institute.

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Nutrition

Ag Against Hunger

\$50,000

Title: Harvest Program

Abstract: The current recession and soaring food costs have greatly affected California citizen's health, with 3.8 million low-income people frequently utilizing food banks. Ag Against Hunger's Harvest Program collects 10 million pounds of surplus produce from growers, shippers and processors to give to food banks in California, feeding two million people annually. A healthy diet can prevent and reduce the effects of obesity and diabetes; therefore food banks are in constant need of fresh produce. The Harvest Program seeks to expand access to healthy, safe California specialty crops, by donating more surplus produce grown in Monterey, Santa Cruz and San Benito counties to food banks across California. This expanded access will increase the amount of specialty crops consumed by low-income Californians.

California Association of Food Banks

\$330,818

Title: Produce Toolbox: Linking Produce Education and Specialty Crop Distributions at California Food Pantries

Abstract: The California Association of Food Banks' (CAFB) Produce Toolbox program delivers innovative "walk the line" produce education to people waiting in food pantry lines to receive fresh fruit and vegetable specialty crops. The program trains pantry staff to conduct interactive lessons focused on single specialty crops. Participants engage in taste testing; learn health benefits of produce consumption and how to store and prepare specialty crops; and receive multilingual recipe cards and nutrition information with their fresh produce. Produce is provided free through CAFB's Farm to Family program, which obtains 125 million pounds of donated specialty crops annually from growers for distribution by food banks. Participants are also encouraged to purchase eligible specialty crops (fruits and vegetables) at farmers markets using Electronic Benefit Transfer (EBT) cards. A 2012 Produce Toolbox pilot (broccoli and stone fruit) showed positive results in increasing specialty crop consumption. This project expands the pilot to include 20 unique specialty crop lessons delivered statewide to at least 30,000 low income people annually.

California State University, Chico Research Foundation

\$398,799

Title: Connecting Agriculture to Schools and Homes (CASH)

Abstract: California State University (CSU), Chico Center for Nutrition and Activity Promotion's (CNAP) research demonstrated that the school-based Harvest of the Month (HOTM) program is an effective way to increase consumption of fruits and vegetables. CNAP's proposed Connecting Agriculture to Schools and Homes (CASH) program will implement a farm-to-school HOTM program in Butte, Glenn and Tehama elementary schools to increase both familiarity with and consumption of California grown specialty crops for at least 15,000 children and their families and 615 teachers. HOTM includes tastings (prepared in a certified kitchen) of specialty crops in school classrooms/cafeterias and nutrition education provided by trained teachers, CNAP staff and university interns. Over the life of the project, students and teachers will receive over 405,000 exposures to featured crops and meet CA farmers through Farmer of the Month (FOTM) newsletters and videos, which will be made available statewide. California Department of Food and Agriculture funds will enable continuation of these successful programs in 30 tri-county schools.

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Community Alliance with Family Farmers

\$400,000

Title: California Farm to School Network

Abstract: With over 1,000 school districts in California (CA), new Farm to School (F2S) programs are beginning in every region, and existing programs want a streamlined way of finding resources, sharing successes, and networking with other organizations. To support programs at various stages statewide, the Community Alliance with Family Farmers (CAFF) proposes to develop a California Farm to School Network (CFSN). The goal is to support CA specialty crop growers through creating a unified, organized F2S movement that allows for better understanding of the CA F2S landscape, minimize duplication of efforts and increase economic viability of local growers. The objectives are to: 1) launch and build the CFSN; 2) foster efficient regional distribution efforts through facilitating at least 30 meetings among growers, distributors and school districts; and 3) provide training and resources through deploying 12 FoodCorps service members to increase awareness of CA specialty crops among K-12 students.

Hoopa Valley Tribe

\$315,003

Title: Fresh Food for Native Folks

Abstract: This project aims to help create multiple local farms and develop a community based farmers' market. In doing this it will bring farm fresh healthy foods to the Hoopa Valley Reservation community and nearby communities. "Fresh Food for Native Folks" will provide people with the assistance needed to construct farms for vegetable production and marketing. In the Hoopa Valley there is only one store to purchase food from and the produce section is small, not very diverse in selection and overpriced for the majority of the community that is low-income or poverty stricken. The need to create opportunity for people of Hoopa and the surrounding towns to start eating healthier is immensely due to the rise in obesity and diabetes. Vegetables and other healthy produce will be more readily available to the local public by creating the crops, creating the market and by providing financial assistance to low-income families by awarding those who qualify with farmers' market vouchers.

Interfaith Sustainable Food Collaborative

\$266,080

Title: Developing Farmer to Consumer Relationships in the Faith Community of the North San Francisco Bay Area

Abstract: The project will increase marketing of specialty crops by establishing producer marketing relationships with faith-based institutions through Community Supported Agriculture (CSA), farm stands, as well as marketing to faith-based schools, camps and retreat centers. The project will facilitate increased purchasing of local produce in Northern California by promoting farmers' products to faith-based groups through outreach, technical assistance, training, resource materials and a conference. It will benefit local specialty crop producers who need additional marketing outlets to maintain economic viability. It will also support promotion of CalFresh nutrition assistance through congregational educational programming. The project will focus on Sonoma and Marin counties. Cooperating entities include private farms, churches, synagogues and Buddhist temples, and government agencies.

International Rescue Committee

\$396,225

Title: Growing Community Food Systems in Underserved Neighborhoods

Abstract: Building on International Rescue Committee (IRC)'s longstanding experience in community development and food security, this project aims to scale up the Community Food System (CFS) approach -- a dual public health and economic development strategy that addresses gaps in nutrition and

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specialty crop consumption by engaging low-income beneficiaries in urban agriculture, farming microenterprise, nutrition education and farmers' markets. IRC will improve the nutritional status for 2,000 low-income beneficiaries. Additionally, 400 community gardeners will increase their specialty crop production and consumption. At least \$1 million will be generated in revenue for the California specialty crop industry for at least 20 specialty crop farmers. At least \$225,000 will be in CalFresh revenue and at least \$10,000 in microenterprise revenue by urban, small-scale farmers in San Diego County.

My Three Squares

\$100,000

Title: Cooking Matters in Community

Abstract: Three Squares will increase consumption of California-grown specialty crops among 1,000 low-income residents in 7 Bay Area counties through Cooking Matters nutrition and cooking classes, increased participation in CalFresh benefits, and support for urban farms. In each class, Cooking Matters participants prepare and eat healthy fruit- or vegetable-based recipes, then take home a bag of produce to make the recipes at home. Among other sites, Three Squares will partner with two urban farms located in and serving low-income communities; they will provide Cooking Matters graduates with the opportunity to purchase weekly bags of affordable, local specialty crops directly from the farms. Three Squares will also train peer educators to teach Cooking Matters. These efforts will combine to ensure that low-income community residents have the knowledge, skills, support, and access they need to increase their consumption of healthy California-grown specialty crops.

North Coast Opportunities, Inc.

\$400,000

Title: NCO FoodPREP (Produce + Rural Enterprise for Prosperity) Project

Abstract: Through the Produce + Rural Enterprise for Prosperity (FoodPREP) Project, North Coast Opportunities (NCO) and the Ford Street Project (FSP) will partner with specialty crop producers to purchase and process Mendocino and Lake County fruits and vegetables and market them to institutional and retail buyers. FSP is a safety net provider of shelter and housing whose clients will learn and practice food processing skills to fulfill their commitment to work 20 hours per week in exchange for transitional housing. FoodPREP will increase farm income for specialty crop producers, because they will have increased access to institutional markets, and open doors to health, hope, and social justice for FSP homeless clients, who will gain nutrition knowledge and job skills, learning to clean, cube, freeze, can, or otherwise process specialty crops.

People's Grocery

\$52,244

Title: California Hotel Community Crops Project

Abstract: The CA Hotel is a low-income housing development in West Oakland where People's Grocery has managed an agricultural space since 2009. The West Oakland community faces considerable health challenges with high rates of diabetes, hypertension, cholesterol, and a number of other health disorders related to limited access to healthy fresh produce and specialty crops. People's Grocery's specialty crop garden at the CA Hotel provides produce to residents and neighbors and serves as a healthy foods education & community building hub for West Oakland. Through the garden space, People's Grocery intends to build community amongst individuals suffering from the worst health effects of poverty while creating opportunities for residents to increase their knowledge of, access to, and interaction with specialty crops.

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Sacramento Neighborhood Housing Services Inc.

\$54,802

Title: Oak Park Farmers Market

Abstract: NeighborWorks® Sacramento completed the third year of the Farmers Market in Oct 2012. During these three years, it has increased pounds of specialty crop sold from 20,000 to 60,000 pounds, and grown to 12 specialty crop vendors. The project goals are to continue to increase specialty crop sales and add specialty crop vendors through marketing strategies and vendor outreach. A special outreach focus will be placed on immigrant populations and low-income residents. To meet these goals, the current specialty crop promotion will be continued and the promotion will be held weekly instead of periodically during the season. Through this promotion, a specialty crop word of the week and information about the crop will be posted on Facebook. This promotion has increased traffic on the organization's Facebook page and increased sales of specialty crops, which helps attract and retain vendors.

Sustainable Economic Enterprises of Los Angeles

\$257,293

Title: Bring the Farmer to Your School Program

Abstract: Since 2002, Sustainable Economic Enterprises of Los Angeles (SEE-LA) and the Los Angeles Unified School District (LAUSD) have partnered to conduct the Bring the Farmer to Your School program with funding from the California Department of Public Health-Network for a Healthy California. SEE-LA and the Network are the sole providers of this important service in all of Los Angeles County. This unique program brings local California farmers into Title I LAUSD classrooms to deliver interactive presentations about agriculture, specialty crops, and the importance to good health of eating more fresh fruits and vegetables. In 2011-12, at 200 schools, the program provided over 80,000 students from urban communities with an impactful educational experience about local agriculture and nutrition they would not receive through the standard LAUSD curriculum. Despite the program's proven track record of success, due to changes in federal SNAP-Ed funding, the program is not funded past 2012-13. SEE-LA is seeking funding to conduct this innovative and successful program in 2013-14.

The HEAL Project

\$256,308

Title: The HEAL Project: EAAT (Engaged Active Agricultural Tasters)

Abstract: A child engaged in planting and preparation of food is more likely to enjoy that food, eat it again and influence buying choices at home. The Health, Environment and Agriculture Lessons (HEAL) Project (THP) curriculum integrates health, environment and agriculture in a California science standards-based lessons, delivered during the school day to 2,300 kindergarten-twelfth grade (K-12) students per year, in classrooms and on the Farm sites, offering students vital education and hands-on experience with growing, preparing and eating fresh produce. Engaged Active Agricultural Tasters (EAAT) expands THP's curriculum to include the purchase of more fresh produce that students will learn to prepare and eat in every class or farm visit. Health department-approved, portable kitchens in the project's classrooms and Farm sites will allow instructors to teach students how to prepare more varieties of California specialty crop (CSC) produce, encourage students to experiment and enjoy new foods in class, then request them at meals, as snacks at home and school, associate fruits and vegetables with feeling great, and become life-long consumers of CSC.

The Regents of the University of California, Santa Cruz

\$72,912

Title: "Food, What?!" - Food for Self, Food for Family, Food for Community

Abstract: While Santa Cruz County is rich in agricultural production, low-income Latino youth and adults are disproportionately suffering from obesity and poor nutrition. "Food, What?!" utilizes farming

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and cooking as the vehicle for enhanced nutrition and increased consumption of fresh fruits and vegetables (California Specialty Crops "CSCs") for 975 area low-income high school youth and 300 adults annually. "Food, What?!" (FW) will achieve these goals through operating seasonal programs and large events on a unique youth-run production farm with outdoor kitchen. At FW teens will dive into a culturally relevant meal with CSCs that they have cultivated, harvested and cooked (*Food for Self*). Youth will harvest and package Community Supported Agriculture (CSA) shares to take home for their family, and FW will engage parents in a cooking series using the produce (*Food for Family*). Youth will operate a weekly farm stand at a low-income elementary school and organize three major seasonal events on the farm (*Food for Community*).

Trust for Conservation Innovation

\$398,327

Title: Fresno Food Commons Prototype Implementation

Abstract: The Fresno Food Commons Prototype Implementation project will launch a vertically integrated, community-owned and operated enterprise to produce and deliver locally grown fruit and vegetable specialty crops to residents in the Fresno region. The project is the first prototype of the Food Commons initiative, which is bringing national resources and expertise to bear on the creation in Fresno of an innovative, values-based model for operating, financing, ownership and governance of regional food production assets and infrastructure.

Western Growers Foundation

\$165,000

Title: If They Grow it, They'll Eat It

Abstract: Western Growers Foundation (WGF) will work with The California Department of Education (CDE) to award 100 K-12 schools \$1,500 each to grow and sustain a fruit and vegetable school garden. Schools will apply for these competitive grants via an on-line application. Before awarding any funding to the schools, the applicants will sign a form committing to only using the funds for fruit and veggie seeds/plants, garden equipment and professional development. According to the CDE, nutrition is an essential building block for student success. Healthy, active, and well-nourished children are more likely to attend school and more prepared and motivated to learn. Studies showed children who were taught nutrition while growing vegetables outdoors in their own gardens, increased their preference for vegetables. Improving the desire to taste vegetables is a first step in developing healthier eating patterns.

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Plant Health and Invasive Species Impact Mitigation

California Department of Food and Agriculture

\$285,896

Title: Biological Control of the Brown Marmorated Stink Bug

Abstract: To provide a sustainable, cost effective management tool for control of the brown marmorated stink bug (BMSB), a new, invasive pest to California. This pest was introduced from Asia to the Mid-Atlantic States in the mid 90s. It is now established in Oregon, Washington, and has been reported in 7 cities in southern California, and one site in northern California. The BMSB has the potential to spread throughout most of the growing regions in California and has a wide host range, including fruit crops, vegetable and field crops, and woody ornamentals. BMSB's piercing, sucking mouthparts discolor fruit, which in turn makes them unmarketable. State-wide surveys will include early detection of BMSB, their spread, host plant associations, and any natural enemies found attacking them. California Department of Food and Agriculture will release newly discovered parasitoids from China, once host range tests conducted at UC Riverside are completed.

The Regents of the University of California, Berkeley

\$277,387

Title: Release of a promising natural enemy for biological control of olive fruit fly

Abstract: Olive is a unique California specialty crop. Olive fruit fly (OLF) is the most destructive olive pest; current management strategies rely on frequent insecticide applications targeting adult flies. This increases farmer costs and may result in the development of insecticide resistance. Moreover, insecticide effectiveness is limited by the presence of abundant ornamental or landscaping olive trees that act as reservoirs for OLF populations. To develop sustainable, area wide management strategies, with previous Specialty Crop Block Grant Program funds the Regents of the University of California, Berkeley (UC Berkeley) imported and evaluated OLF natural enemies, becoming a recognized world-leader in OLF bio-control. UC Berkeley demonstrated, for the first time, establishment of an introduced parasitoid (*Psytallia lounsburyi*). Here, UC Berkeley proposes to build upon this success through production and release of *P. lounsburyi* in California olive regions where it is most likely to thrive. This will ensure the parasitoid's establishment, and provide an opportunity to determine its economic impact.

The Regents of the University of California, Davis

\$392,309

Title: Mechanisms, distribution and invasion potential of glyphosate-resistant junglerice in tree and vine cropping systems

Abstract: This project addresses California tree and vine industry concerns about rapidly evolving weed management issues related to known or suspected glyphosate-resistant (GR) summer grass weeds. The research team, which includes University faculty, a Cooperative Extension Specialist, University of California Cooperative Extension (UCCE) Farm Advisors, and supporting scientists, has significant experience in herbicide-resistant weed research. During this project focused on GR junglerice, multiple scientific approaches ranging from the lab to the field will be used to develop new information on the distribution, biology, physiology, mechanisms of resistance, and invasion potential of emerging GR summer grass weeds. The overarching goal of this project is to develop practical weed management practices that enhance the productivity and sustainability of California orchard and vineyard cropping systems.

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The Regents of the University of California, Davis

\$349,817

Title: Development and implementation of a strategy for durable resistance to lettuce downy mildew in California.

Abstract: The Regents of the University of California, Davis will determine the variation and variability of downy mildew, the most important pathogen of lettuce in California, using high throughput DNA sequencing. This information will be used to identify effective new resistance genes that will be bred into advanced breeding lines suitable for California. This will provide a strategy for durable disease resistance than minimizes dependency on chemical protectants and aids organic farmers.

USDA, Agricultural Research Service

\$201,342

Title: Characterization of resistance in cantaloupe and honeydew to Cucurbit yellow stunting disorder virus and sweetpotato whitefly

Abstract: Cucurbit yellow stunting disorder virus (CYSDV) and its vector, the sweet potato whitefly (SPWF), have virtually eliminated fall season production of cantaloupe and honeydew melons in the lower desert of California. Three non-sweet, vegetable type melons (NSVM) have high-level host plant resistance (HPR) to CYSDV; two of them have low-level HPR to SPWF. More than 12 putative new sources of HPR to CYSDV were identified from 2009 to 2011. Five of them were confirmed in 2012. Three of them have higher-level SPWF resistance and several have fruit characteristics of sweet melons and are more similar to cantaloupe and honeydew than NSVM, and may be better donors of CYSDV and SPWF resistances. The best sources of resistance to CYSDV and SPWF will be determined and used to breed CYSDV and SPWF-resistant cantaloupe and honeydew. These sources of resistance to CYSDV and SPWF may also be used for development of melons for California niche markets (Hami, Korean and central Asian melons).