

California Department of Food and Agriculture 2021 HSP Demonstration Projects - Applications Submitted to CDFA*						
Applicant Organization	Project Type**	Project Description	Funds Requested	Cost Share (Recommended but not required)	County	GHG Reduction Estimation (MTCO ₂ eq/year)***
The Regents of the University of California (University of California, Davis)	Type A	This Type A project will (a) implement two eligible management practices - anaerobic digestate and food waste hydrolysate application, (b) measure soil organic carbon sequestration, field GHG emissions, and crop yields, and (c) assess multiple co-benefits including soil health indicators, reduced inorganic N fertilizer requirements, and economic cost-benefits to address important knowledge gaps. A replicated on-farm experiment will be implemented in Solano County on a silty clay loam soil under a typical annual crop rotation, making results widely representative. We will conduct farmer outreach and education through annual field days and other activities to reach 40 farmers per year. Extension efforts will focus on the benefits and barriers of practice adoption, particularly related to economics and nitrogen management. Field GHG emissions will be measured each growing season using internationally-accepted methods. Results will help CARB develop a GHG quantification methodology and implementation standard for anaerobic digestate and food waste hydrolysate application.	\$249,929.00	\$57,844.00	Solano	Data to be collected
Center for Land-Based Learning	Type A	Recent research demonstrates that biochar offers a multitude of agronomic and environmental benefits, especially in combination with compost application. However, on-farm use of biochar remains low because of uncertainty of the costs and benefits for different cropping systems. This project will increase knowledge of the carbon sequestration and GHG reduction potential of biochar in a new 5-acre olive orchard, address knowledge gaps on biochar's ecosystem impacts, and assist in streamlining methodology for its wide scale adoption. The Center for Land-Based Learning (CLBL) is collaborating with U.C. Davis and Boundary Bend Olives to investigate the potential of biochar and compost to 1) increase soil carbon sequestration, 2) reduce GHG emissions, 3) increase yields, and 4) improve soil health indicators. Treatments include biochar, compost, biochar plus compost, and a grower standard control. The project's location at CLBL's educational farm in Woodland will facilitate robust outreach to growers in Yolo County and statewide.	\$248,375.00	\$47,331.00	Yolo	Data to be collected
White Buffalo Land Trust	Type A	This project will evaluate the feasibility of biochar application on vineyard soils as a tool to increase carbon sequestration potential of agricultural soils, while creating resilience in agroecosystems in the face of changing climate. Working with our partner at UCSB, we will use a scientifically robust experimental design and sampling methodology to derive deeper insights into the potential of biochar to mitigate compost GHG emissions, sequester carbon, improve soil health and increase soil moisture retention. Our partnership with Sandhi Wines will help evaluate the response of grape yield and quality to biochar treatment. Our partners at the Community Environmental Council (CEC), will communicate and demonstrate the efficacy of biochar and the potential of the agricultural sector to be a leader in climate change mitigation.	\$189,412.06	\$0.00	Santa Barbara	Data to be collected

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American Farmland Trust	Type A	AFT, Pacific Farming Company; University of California, Merced; Sierra Resource Conservation District (RCD); and Madera/Chowchilla RCD will demonstrate Biochar Application on an almond orchard. 15 field plots in a spatially-balanced complete block design includes 3 replicate blocks of 4 Treatments (T) and 1 Control (C). Ts include: low application rate of almond tree pruning biochar; high application rate of almond tree pruning biochar; low application rate of almond shell biochar; and high application rate of almond shell biochar. Pre-treatment and annual soil samples will assess soil organic carbon and health. UCM will take: soil GHG flux measurements monthly and during management events with a multi-gas laser-based analyzer (Picarro G2508) that allows in-situ measurements; monthly ecosystem measurements of gravimetric soil moisture, plant available nitrogen, and stomatal conductance; and fall and spring measurements of soil water infiltration using a single ring infiltrometer. AFT will analyze economic benefits. Partners will host 3 demonstrations.	\$249,980.61	\$9,334.85	Madera	Data to be collected
Mission Resource Conservation District	Type A	The goal of the project is to regenerate soil health on existing crop and fallow lands by controlling Phytophthora citricola and P. cinnamomi growth in avocado and citrus groves. This will be pursued with adoption of the following healthy soils management practices: mulching and compost applications, cover cropping, mycorrhizal and vermicompost applications, microbial inoculations with compost tea and on certain blocks, whole orchard recycling. In addition, specified blocks will receive nutrient management practices with a 15% reduction of fertilizer application. These practices should demonstrate substantial improvement of soil organic matter, water holding capacity and reduction of greenhouse gases measured by lab soil tests and microbiometer assessment of microbial, bacterial and fungal activity. The identified project outcomes are to see the adoption of these healthy soils practices by growers in the region and to educate and interest 120-plus growers through the outreach activities of the project.	\$188,775.46	\$89,650.00	San Diego	Data to be collected
San Mateo Resource Conservation District	Type A	This project, "Rangeland Compost Application for Restoration and Carbon Sequestration", will trial two application rates of compost to depleted rangeland demonstrating the effects compost has on fertility, forage, soil carbon, and water infiltration. This study builds off previous research and will compare Healthy Soils Program's 7 T/acre/year to a one-time 20 T/acre application. This project is a partnership between the San Mateo Resource Conservation District, TomKat Ranch, and Point Blue Conservation Science and will be incorporated into the existing TomKat Ranch Carbon Farm Plan. This demonstration project will inform rangeland managers on the most economically effective rate at which to apply compost application to achieve the many co-benefits associated with the practice. Outreach will extend beyond local ranchers to include other agricultural stakeholders through articles, social media, ranch tours, and TomKat Ranch's Ranch Data webpage, reaching thousands of people throughout the grant term.	\$187,941.99	\$13,580.70	San Mateo	Data to be collected

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The Latino Equity Advocacy and Policy Institute	Type A	The project team is being led by The LEAP Institute (LEAP). UC Davis and Biodico Renewables (Biodico) are partners. LEAP is a 501(c)3 headquartered in Huron with a CalEnviroScreen 4.0 score of 84.72%. The Community Learning Garden (CLG) totals .29 acres (APN 075-224-11 and APN 075-22-12). LEAP will (1) build two tunnel greenhouse nurseries and shade structures for lettuce, tomatoes, onions, garlic, peppers, cilantro, blueberries, blackberries, figs, pomegranates, persimmons, peaches, plums, apples, pears, and shade trees, and (2) transplant the seedlings and saplings to private and public places in Priority Communities.	\$250,000.00	\$2,178.60	Fresno	Data to be collected
University of California Division of Agriculture and Natural Resources	Type B	Winter cover cropping in rice is not widely adopted in California, and limited research has explored the survivability and nutrient dynamics of cover crop mixes in rice systems. This project aims to increase the potential adoption of winter cover cropping by increasing the information available to growers who want to utilize the practice. Three project sites have been chosen for demonstrating cover cropping to the broader rice industry while exploring four research objectives: 1) to determine the relative survival of species in a winter cover crop mix used in rice across the Sacramento Valley; 2) to assess potential cover crop biomass production as well as C and N levels in the biomass; 3) to determine the yield benefits to rice, if any, in comparison to a fallow field; and 4) to assess the dynamics of soil organic matter and nitrogen in the soil in comparison to a fallow field.	\$99,466.81	\$45,646.59	Butte, San Joaquin, Colusa	10
Rodale Institute	Type B	We aim to demonstrate economically viable and environmentally friendly management practices (i.e., cover cropping and no tillage) that improve soil health in vegetable production systems and disseminate information on the benefits of these practices to farmers across the state. A replicated randomized complete block design experiment will be conducted with the following treatments: T1) oat and vetch mix with conventional till; T2) oat and vetch mix with no-till; T3) oat and pea mix with conventional till; T4) oat and pea mix with no-till and C) control (no cover crop with conventional till). The effect of cover crop and tillage treatments will be evaluated on pumpkin and green cabbage yields and soil health on four acres certified organic land in Camarillo over the course of 3 years. Results will be disseminated to the stakeholders via field days and on-farm demonstration events, webinars, web articles, and conference presentations.	\$100,000.00	\$0.00	Ventura	2

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Kandarian Organic Farms	Type B	Kandarian Organic Farms would like to expand existing carbon-sequestering soil health boosting practices across our farm. We have seed and equipment to expand grassed waterways to 5660' along the edge of our farm fields that are natural drainage ways. Management would like to install a hedgerow along one property boundary to provide privacy for the farm as well as our hipcampers. This hedgerow will also become a seed collection site and the farm will sell native hedgerow seed mixes online. The farm has already implemented some conservation cover, crop rotation, and cover cropping but would like to expand this acreage to see its impact on crop quality and soil health.	\$70,790.00	\$6,650.00	San Luis Obispo	19
California Marine Sanctuary Foundation	Type B	Residue Management and Reduced Tillage is a practice that is important to regenerating soil health in agricultural production and storing carbon in working lands, yet little success has been reported and practical knowledge on methodology, equipment and cropping cycles is critical to achieve widespread adoption. This project will implement reduced tillage and residue management on a 28-acre block of land in Salinas Valley, reducing the number of tillage passes from conventional tillage by two-thirds (from 12-15 conventional tillage passes to 4-5 reduced tillage passes) and reducing the depth of soil disturbance. Braga Fresh will provide oversight and management of the reduced tillage practice on this field, which is in the final stage of transition from conventional to organic production. Through a total of at least 8 outreach events, including at least 3 on field demonstration events, the project team will share the methodology, equipment and lessons learned from this project.	\$99,936.22	\$47,175.71	Mont- erey	1
Sutter County Resource Conservation District	Type B	The Sutter and Yuba County Resource Conservation Districts are looking to apply for this grant because they see the potential to help local farmers in their area understand and possibly adopt conservation practices which reduce GHG and promote a more sustainable way to farm. There are some practices in our region that many farmers do not participate in which can be beneficial to soil and plant healthy but also reduce GHG's. The practice we would like to help farmers adopt is cover cropping in orchard systems.	\$87,218.95	\$0.00	Yuba	12

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