AGRICULTURAL WASTE SOLUTIONS,INC.

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March 1, 2017

California Department of Food and Agriculture
Healthy Soils Initiative

Subject: Comment letter for CDFA Healthy Soils Initiative

To Whom It May Concern,

Ag Waste Solutions ("AWS"), headquartered in Westlake Village, California, wishes to express our gratitude to CDFA for inviting us to participate in the Healthy Soils Initiative Summit of January 11, 2017 and for inviting comments from stakeholders and the public. AWS works with California dairy farms to produce low-carbon transportation fuels and carbon negative co-products that reduce GHG emissions and improve water and soil quality while creating new profit centers from manure and other ag resources.

Please see below our comments from the January 11, 2017 Healthy Soils Initiative Summit and documents:

1. There is a high level of interest in the Healthy Soils Initiative from the compositing entities, which is understandable given the current regulatory trends; however, we are concerned that composting alone may not represent the best solution for the future of healthy soils in California. Compost is becoming oversupplied in California, and high VOC emissions and odors from composting operations increasingly require expensive indoor facilities and air filtration systems. We suggest that CDFA encourage new opportunities for symbionic soil health improvement solutions that combine soil health microbiology, bio-carbon and bio-nutrient soil amendments (e.g.nutrient rich-biochar from manure, digestate, other high GHGE ag residuals), and bio-fertigation practices. For example, biochar has been shown to be a value-added addition to composting operations that can dramatically lower VOC's and odors while reducing curing times up to 25% by using only a 5% volume of biochar feedstock in the compost. Combined, symbionic solutions produce superior results.
2. Listed in the "Actions for Healthy Soils Initiative" is "To incentivize voluntary on-farm management practices," which is an excellent objective. Leading through example with actual on-farm practices is a strong method in gathering credible data for large-scale farming applications. We support a state-wide effort to integrate healthy soil on-farm best management practices, enabling a strong and on-going support mechanism from the federal, local, and state agencies (e.g. NRCS,RCD's,CDFA) working together to support famers.
3. A growing source of compost feedstock is from the anerobic digester (AD) digestate solids from the solids material separated from the slurry post AD. With legistlation such as SB 1383 calling for a 40% reduction in methane emissions from dairies by year 2030, and the estimates of ~ 300 AD systems required to meet this mandate (16 AD today), anerobic digestate solids will become an increasing source of methane emissions. We are concerned that SB 1383 and related legislation may regulate out compost and composting as a method of anerobic digestate solids land application due to the high VOC's and high GHGE of these operations. We would like CDFA to be mindful of this and enable other, more sustainable methods and technologies to create healthy soil amendments (e.g.biochar) in a Healthy Soils Initiative that truly represents California's future.

Sincerely,

Stephen McCorkle, CEO
Agricultural Waste Solutions, Inc.

From: Craig And Melanie Johnson [alpenglowfarms@gmail.com]
Sent: Thursday, March 02, 2017 5:08 AM
To: CDFA OEFI@CDFA
Subject: Comments from Alpenglow farms

To Whom it May Concern,
Regarding the CDFA hosted discussion regarding the Healthy Soils Program framework. My recommendations are to:
1. Provide information regarding local resource use practices with recommendations to fund projects that involve small scale mixed use farms and cannabis farms specifically, that implement holistic property management plans.
2. Secure funding to systematically quantify baseline and improved soil health conditions on farms geographically situated within sub-watersheds. Help those farmers to continue to transition away from potting soil to living soil cultivation systems. AND collect additional climate data at the same time to inform the development of appellations.
Furthermore, participating in the first stakeholder meeting yeild the following comments:
1. The focus is on the implementation of healthy soil practices that store carbon in an effort to offset climate change. This focus specifically supports the type of outdoor full sun food and cannabis cultivation occurring in northern California.
2. While not stated explicitly, the language used led me to believe that the current envisioned project locations will be large-scale food farms. There was no discussion of crop diversity. Crop diversity is an extremely important component to building healthy soils that store carbon as it reduces the need for pesticide and insecticide use and allows for no- till operations.
3. Science appears to be a core value of the program. The metrics presented for quantifying change in soil health over time are (in the presenter's words):
- Soil carbon & total organic matter content
- Bulk density
- Soil texture
- pH
- Species composition
- Soil aggregate stability
- Forage production
- Infiltration rate
- Compaction
- Total N in soil solution
- Wildlife identification

It is my professional opinion that the following soil metrics will provide a more cost effective approach to quantifying soil health:

- Total soil fertility profile

- Percent soil carbon

  - Total organic matter content

- pH

- Microbial abundance and species composition

- Water holding capacity

- Nitrogen to Carbon ratio

4. In my opinion, forest management must be a fundable component where farms and forests co-exist. Northern California watersheds are covered with dense unmanaged recovering timberlands that use way too much water, degrade habitat, create fire risk and contain valuable soil building, carbon rich, organic matter.
5. Small farms must be fundable. In Humboldt, Trinity and Mendocino Counties, the cultivated area on most cannabis farms ranges from 1/4 - 1 acre in size. These farms are the bread basket of the Northern portion of the state. While the cultivated area is small, farmers manage adjacent forest and wildlands that require additional funds to manage in a manner that stores carbon rather than creates a potential source of atmospheric carbon via forest fire.
With my best regards,
Craig Johnson
Alpenglow farms
PO box 567
Bayside Ca. 95524

From: Athene Sav [athenesav@gmail.com]
Sent: Thursday, March 02, 2017 3:42 PM
To: CDFA OEFI@CDFA
Subject: Healthy soils program

To Whom it May Concern,
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1. Provide information regarding local resource use practices with recommendations to fund projects that involve small scale mixed use farms and cannabis farms specifically, that implement holistic property management plans.
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cultivated area is small, farmers manage adjacent forest and wildlands that require additional funds to manage in a manner that stores carbon rather than creates a potential source of atmospheric carbon via forest fire.

From: Jim Brown [jimb@karrgroupco.com]
Sent: Monday, January 30, 2017 3:42 PM
To: CDFA OEFI@CDFA
Subject: Bio-char

I did not see any mention of Bio-char. California is losing all of the bio-mass to electric plants, because of lost subsides. All the orchards and other wood waste will need to be burned. We have the technology to take that carbon out of the air and put in the ground where it is needed while being carbon negative.

We have the most economically and environmentally sustainable use of bio-mass.

www.karrgroupco.com

James Brown
COO
Karr Group of Companies, LLC
360-880-4054

From: Carl Bruice [CBruice@wilburellis.com]
Sent: Monday, January 23, 2017 11:51 PM
To: CDFA OEFI@CDFA
Subject: Health Soils Initiative Framework

Just reviewed the HSI framework that was released this afternoon and I think if the intent is to include actual farmers that your timeline is unrealistic. You have to get their attention, engage them, train them on what this all means to THEIR operation (including how to use the tools that verify reductions in GHG from agricultural fields) and expect proposals for grants to be due by June. For many if not the vast majority of CA farmers the busy season is right around the corner and their top priority is to farm successfully. It will be very interesting to observe the level of interest that this receives from the farming community.

From a scientific viewpoint when organic matter sources such as cover crops, green manures, composts, etc. are incorporated into soils and irrigated there is an increased release of CO2 as these energy sources are digested by soil microorganisms. In fact one of the analytical techniques developed by scientists including USDA scientists is measuring the amount of CO2 released from soils under controlled conditions with the concept being the more microbial biomass present, the greater the burst of CO2 released.

Perhaps the ARB has a formula showing NET C release is reduced (Carbon fixed by growing crop – carbon released by decomposing plants).

Good luck!

Carl Bruice

National Nutrition Technical Manager
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841 West Elkhorn Blvd
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Secretary Karen Ross
California Department of Food and Agriculture
1220 N Street
Sacramento, CA 95814

February 27, 2017

Dear Secretary Ross,

On behalf of the undersigned agriculture and conservation organizations, we offer the following comments on CDFA's latest proposed framework for the Healthy Soils Program.

Since 2014, we have met as a group to discuss the opportunities and challenges of a new Healthy Soils Program. We came together as farmers, agricultural professionals, policy experts and advocates. Our aim is to assist with efforts to forward a vision for Healthy Soils that delivers real climate change solutions that provide multiple benefits to our communities, while steeped in the practical needs of farmers and ranchers the program aims to serve.

Please find below our most recent set of recommendations on the Healthy Soils Program. We look forward to working with you and your staff on implementation of this important program.

Sincerely,

Ed Thompson, Jr.
California Director
American Farmland Trust

Ann Thrupp
Executive Director
Berkeley Food Institute, UC Berkeley

Karen Buhr
Executive Director
California Association of Resource Conservation Districts

Kelly Damewood
Policy Director
California Certified Organic Farmers (CCOF)

Jeanne Merrill
Policy Director
California Climate and Agriculture Network

Torri Estrada
Executive Director
Carbon Cycle Institute

David Runsten
Policy Director
Community Alliance with Family Farmers

Janet E. Derecho
Executive Director
Ecological Farming Association

Brittany Heck Jensen
Executive Director
Gold Ridge RCD

Nancy Scolari
Executive Director
Marin Resource Conservation District

Patricia Hickey
Executive Director
Mendocino County Resource Conservation District

Rex Dufour
Western Regional Office Director
NCAT/ATTRA

Dave Henson
Executive Director
Occidental Arts & Ecology Center

Margaret Reeves
Senior Scientist
Pesticide Action Network

Ellie Cohen
President and CEO
Point Blue Conservation Science

Chris Coburn
Executive Director
Resource Conservation District of Santa Cruz County

David S. Gates, Jr.
Senior Vice President, Vineyard Operations
Ridge Vineyards, Inc.

Michael Dimock
President
ROC Fund

Sopac McCarthy Mulholland
President and CEO
Sequoia Riverlands Trust

Kara Heckert
Executive Director
Sonoma Resource Conservation District

Wendy Millet
Director
TomKat Education Foundation

Kris Beal
Executive Director
Vineyard Team

Jo Ann Baumgartner
Director
Wild Farm Alliance

Healthy Soils Incentives Program:

1. ***Fund full cost of practices***

As CDFA considers the funding levels of incentives, the full costs associated with particular practices should be considered and adequately incentivized. We cannot only rely exclusively upon NRCS costs associated with their practice standards because NRCS does not always include the full costs of the practices or reflect California production costs.

For example, the installation of new hedgerows requires costs that NRCS does not currently reimburse for, such as design and appropriate plant selection, as well as continued maintenance of the hedgerow, which includes irrigating those new plantings as they become established. Another example is the cost of fencing near riparian plantings to exclude livestock and wildlife from the newly established trees and shrubs. These costs are real and adequately funding them can make the difference for the grower in successfully deploying the practice.

Additionally, NRCS practice costs are determined at the national level and in many cases may not adequately reflect the true cost of the practice in California, which has higher production costs than many parts of the country.

We suggest basing the incentive payments on actual grower costs. Like other grant programs, growers could include in their application their budget for each practice. CDFA could then determine what percent of the costs it plans to cover. Alternatively, if CDFA prefers to set practice costs in advance, we suggest that CDFA work with NRCS partners and other agricultural professionals (e.g. RCDs, Cooperative Extension, etc.) to put together cost estimates for the Healthy Soils practices, based on California production costs and the full range of expenses associated with implementation.

If we fail to offer incentives that reflect the true costs of implementing the practices, the Healthy Soils Program may fail to inspire and engage the farmers and ranchers we seek to serve and who will serve our state by their good work.

2. ***Eligible Practices Should Include Cover Crops, Reduced Tillage***

We support the list of proposed eligible practices as outlined in the California Air Resources Board presentation from the January meeting of the Environmental Farming Science Advisory Panel (which can be found on slide 6 of the ARB presentation from 1/19/17).

We understand that there has been some concern about whether or not to include cover crops and reduced tillage in the program. We strongly urge the inclusion of these two practices. There have been several studies on the climate benefits of these

practices[1]. One comprehensive California study found that cover crops and reduced tillage lower GHG emissions and improve soil organic matter[2]. Moreover, the study found that the mitigation benefits of those practices are enhanced when done in combination. We will miss out on the carbon sequestration and nitrous oxide emission reductions associated with those practices if not included in the program.

We suggest that the agency's scoring system reflect the enhanced beneficial impact of stacked practices, as described further below.

3. ***Develop a process for adding new eligible practices to the program***

We note that the proposed list of Healthy Soils practices includes some, but not all of the USDA/NRCS Climate Change Building Blocks practices, the initial basis for the Healthy Soils practice list. For example, managed/ prescribed grazing is included in the USDA list, but not on the Healthy Soils list.

We suggest that CDFA develop a technical review committee, made up of members of the Environmental Farming Science Advisory Panel, and members of the California research community with expertise in these issues. The committee could review proposals for the inclusion of additional practices, reviewing the status of the literature and forwarding recommendations to CDFA and ARB. This kind of process has served CDFA's Fertilizer Research and Education Program and other state programs.

4. ***Simplify Application Process***

The CDFA draft framework suggests that applicants will be required to submit baseline data and documentation, but provides no other details on the application requirements. We urge CDFA to keep the application as straightforward as possible, asking farmers and ranchers to submit data that they would typically have readily available to them, such as soil type and quality, cropping history, management history, etc.

<u>Healthy Soils Demonstration Projects</u>

5. ***Determine Eligible Funding Under Demonstration Projects***

We support CDFA's proposal to allow for multi-year (2 year) demonstration projects under the Healthy Soils Program. We believe the $250,000 project cap makes sense, especially if the full costs of the project can be covered.

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[1] For CalCAN's 2014 literature review, please see: http://calclimateag.org/wp-content/uploads/2015/02/Climate-Benefits-of-Agriculture-2015.pdf

[2] De Gryze, S., A. Wolf, S.R. Kaffka, J. Mitchell, D.E. Rolston, S.R. Temple, J. Lee, and J. Six. 2010. Simulating greenhouse gas budgets of four California cropping systems under conventional and alternative management. Ecological Applications 20(7), 1805–1819.

Those expenses include not only the installation of the on-farm practices that will be highlighted in the demonstration project, but also the partner project expenses to coordinate the project, conduct the outreach, host farm field days, publish related materials, track relevant data (e.g. soil testing, etc.), etc.

We encourage CDFA to outline the eligible costs associated with the demonstration projects and ask for stakeholder feedback on their proposed list of costs.

Scoring for Incentives, Demonstration Projects

6. *Make Scoring Criteria Transparent, Include Co-Benefits, Stacking of Practices*

For both the incentives and the demonstration projects, we encourage CDFA to make scoring criteria available to provide some guidance to applicants. This is done, for example, for the Strategy and Outcome Grants under the Sustainable Agricultural Lands Conservation Program (SALCP) and the Specialty Crop Block Grant program. The scoring criteria can be general enough to provide reviewers some flexibility, especially in the first year of the program, but still provide direction to the applicants on what is important to consider as they put together their projects.

We also suggest that those projects that demonstrate multiple environmental and community co-benefits receive higher application points than those projects that do not. AB 32 is clear that our climate change efforts should achieve multiple health and environmental co-benefits, especially greater resilience and improved air and water quality.

Finally, we know from the literature that combining management practices that improve soil organic matter does more to increase carbon sequestration and reduce GHG emissions than any single practice[3]. Thus, projects that combine practices, showing the greatest promise for greenhouse gas emission reduction and carbon sequestration, should receive higher application points than those that do not.

Technical Assistance

7. *Funding technical assistance*

As we have seen with the State Water Efficiency and Enhancement Program (SWEEP), grower access to technical assistance is crucial to the success of the program. There is precedent at the Air Resources Board for allowing state agencies responsible for implementing climate change programs to partner with outside agencies/NGOs to assist with implementation. Examples include the Low-Income Weatherization Program, the Strategic Growth Council's funding for technical assistance for its Affordable Housing and Sustainable Communities Program, and the Urban Forestry Program that allows for on-going maintenance of trees.

[3] De Gryze, S., et. al. 2010. Ibid.

The Vision for the Healthy Soils Initiative outlines the need for technical assistance (Action 3). We echo that need. There are several types of technical assistance that we suggest that CDFA consider eligible under the Healthy Soils Program, including:

A. Project Development: Work with farmers and ranchers to identify management opportunities to improve carbon storage in soils, to reduce greenhouse gas emissions, and to achieve related agronomic, environmental and economic benefits.
B. Outreach and Assistance: Outreach to farmers and ranchers to let them know of the Healthy Soils Program opportunity. Provide workshops and other assistance for grant applications.
C. Project Implementation and Evaluation: Once funded by the Healthy Soils Program, technical assistance providers can work with grantees on implementation of their practices (e.g. Urban Forestry program). Technical assistance providers can also work with CDFA to evaluate the projects' impacts over time.

We are glad to the see that the Strategic Growth Council has one-time funding for application assistance. But because successful technical assistance stretches beyond grant application assistance to include implementation issues, for example, it is important that we seek more robust technical assistance for the Healthy Soils Program.

We suggest that CDFA seek to fund technical assistance as part of the Healthy Soils Program either as part of department's administrative funds for the program and/or as an eligible component of the funded projects.

Thank you for your consideration of these comments.

CALIFORNIA ASSOCIATION OF RESOURCE CONSERVATION DISTRICTS
801 K Street, 14th Floor Sacramento, CA 95814
***Phone:** (916) 457-7904 **Fax:** (916) 457-7934*
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RESOURCE
CONSERVATION DISTRICTS

California Department of Food and Agriculture
Environmental Farming Advisory Panel
1220 N St
Sacramento, CA 95814

Dear Environmental Farming Advisory Panel,

Thank you for the critical and exciting Healthy Soils Initiative (HSI) program. Resource Conservation Districts (RCDs) are looking forward to assisting and partnering with you in the implementation of funding in our local communities. Thank you for making this opportunity available.

As you know, the 98 RCDs in the State implement projects that promote soil health, agricultural viability, habitat and conservation of our critical natural resources among many other issues facing our communities. We work with local landowners and partners to help our communities thrive both economically and environmentally.

We offer these suggestions in order to build a stronger partnership with CDFA and a stronger program for our farmers and ranchers. We look forward to working with you as this program goes forward. Please call on us if we can be of assistance.

Technical assistance for farmers and ranchers is the most critical need for this program. We want to stay focused on finding funding to support farmers and ranchers to get technical assistance. We have worked and partnered with CDFA over the last few years, so we understand the challenges, but also feel that without technical assistance, the program will not be as effective or efficient as it could be.

Please find the attached recommendations as additional ways to strengthen this critical program. We also support the letters submitted both by Carbon Cycle Institute and CalCAN.

Thanks for your time and attention to this matter.

Karen Buhr
Executive Director

Karen Buhr

General Recommendations

#1 - Leverage existing local RCDs' and NRCS programs

Collaboration with existing NRCS and RCD programs and funding will be vital in order to ensure the practical application and longevity of HSI. For instance, leveraging already existing NRCS financial support, such as EQIP, includes technical assistance and additional funding, both of which further supports producers in implementation. Local RCD and NRCS offices not only have the technical expertise, but also already have rapport with landowners and long term relationships within their communities. Cumulatively, these diverse qualifications are critical for successful implementation of on-farm practice implementation and establishing trust, funding, and interest for future projects. CDFA should aim to collaborate HSI projects with existing RCD and NRCS programs.

#2 Use COMET-Planner as a quantifying tool and for on-farm planning

A set of online tools developed by USDA-NRCS and researchers at Colorado State University, COMET-Planner helps guide the process of developing a carbon farm plan and allows the quantification of GHG benefits. This program uses a whole-farm approach and offers all feasible and site appropriate practices possible for maximum on-farm greenhouse gas (GHG) reduction and sequestration opportunities. Developed by a technical advisor in conjunction with the landowner, a Carbon Farm Plan is based on the NRCS Conservation Planning process and engages practices that increase ecosystem carbon sequestration and provide important environmental co-benefits, including water savings, increased productivity and improved wildlife habitat.

#3 Eligibility of ALL NRCS conservation practices found in COMET-Planner and other climate-beneficial practices supported by research

We support the list of eligible practices laid out in the HSI draft framework, however, we believe more can be included to enhance the effort to reach this project's goals. COMET-Planner has adopted all 35 practices that NRCS has identified to either sequester carbon or reduce GHG, including but not limited to: crop rotation, compost application, alley cropping, prescribed grazing, agroforestry. COMET-Planner also includes other climate-beneficial practices that are supported by research such as compost application on rangeland and riparian restoration. HSI should include all practices utilized in COMET-Planner as eligible practices.

#4 Incentivize a whole-farm perspective

Using a whole-farm approach when identifying GHG sequestration or mitigation practices optimizes the goals of HSI along with producing additional co-benefits. We recommend CDFA encourages a whole-farm perspective by requiring or giving preference to producers who includes multiple practices or will enact a conservation plan or carbon farm plan developed with an RCD or NRCS. By tying multiple GHG beneficial practices, HSI will have a significantly greater environmental impact and address the full range of co-benefits that are statewide priorities. Working with a conservation or carbon farm plan ensures that practices are appropriate to the specific site and that the grower understands how to appropriately implement the practice through technical assistance.

Funding

#5 Funding for producers can be used to contract RCDs for technical assistance

Technical assistance - including conservation and carbon farm plans, implementation oversight, and monitoring and measuring soil organic carbon and co-benefits - from agricultural conservation experts is crucial in ensuring effective implementation and anticipated results ensuring the success of the HIS program. Healthy soil practices are not intuitive for farmers and can have devastating impacts if implemented incorrectly, thus require technical assistance. Eligible use of funds should include contracting the producer's local RCD in order to carry out technical assistance, and ability to leverage funds through other sources that support technical assistance, such as NRCS EQIP. This would not only encourage the use of technical assistance, but it would also allow for more of the costs to be covered providing more incentive for projects that have little to no economic incentive.

#6 Raise the Incentive funding cap and install tiered funding levels

Raising the funding cap to $50,000 will allow further opportunity for producers to implement multiple carbon-beneficial practices on as large of a scale as feasible as suggested by a whole-farm approach. Funding levels for the incentive projects should have a tiered structure based on number and/or scale of practices proposed. For example, depending on the practice and potential GHG impact, 1 practice at $25,000, 2 practices at $35,000, 3-4practices at $50,000. We also suggest that projects proposing multiple practices, or practices that support multiple ecosystem benefits are awarded higher scoring.

#7 Fund full cost of practices

Many of the projects being proposed provide little or no economic gain. Yet the practices with the least benefit to farmers often provide the highest benefits for California's landscapes, waterways, water supply and environment. To incentivize adoption of healthy soils practices, HSI should fund the entirety of the projects including the associated costs such as necessary infrastructure to support the practice being implemented. While a standard framework should be adopted, applicants should have the opportunity to explain why the economics may be different in their particular project.

#8 Match Suggestions:

1) We recommend that producers' in-kind work is recognized and eligible to be used for fund matching for the Incentive and Demonstration programs. Producers work extensively every day and few have the actual or financial flexibility of working outside the norm and should be incentivized in doing so.
2) Funding for demonstration projects should include partner projects such as outreach, field days, data tracking, etc. If direct funding is unavailable to partner organizations, we recommend creating the option for the producer to use their funds to contract a local RCD, or allow the partner to use their time as match to fulfill this important requirement.

CCOF
Organic Certification Education & Outreach Political Advocacy Promotion

Amrith Gunasekara
Science Advisor
California Department of Food and Agriculture
1220 N Street
Sacramento, California 95814

Re: Healthy Soils Program: draft framework

February 27, 2017

Dear Dr. Gunasekara,

Thank you for the opportunity to comment on the draft framework for the Healthy Soils Program. CCOF (California Certified Organic Farmers) commends the California Department of Food and Agriculture (CDFA) for its leadership in advancing soil management practices that will benefit our climate and our communities.

CCOF is a nonprofit organization governed by the people who grow and make our food. Founded in California more than 40 years ago, today our roots span the breadth of North America and our presence is internationally recognized. We are supported by an organic family of farmers, ranchers, processors, retailers, consumers, and policymakers.

Soil health is a fundamental tenet of organic agriculture. With over 3,000 registered organic farmers throughout the state, CDFA and the Environmental Farming Act Science Advisory Panel have the opportunity to learn from a vast network of organic farmers and to incentivize wider use of long-established organic farming practices throughout the state.

Please find below CCOF's comments on CDFA's latest proposed framework. We would welcome the opportunity to provide further information on the numerous benefits of organic agriculture and look forward to participating in the development of the Healthy Soils Program.

Sincerely,

Policy Director

cc: Cathy Calfo, Executive Director/CEO

2155 Delaware Avenue, Suite 150, Santa Cruz, CA 95060 • (831) 423-2263 • fax (831) 423-4528 • ccof@ccof.org • www.ccof.org

Healthy Soils Incentives Program

1. *Consider using net greenhouse gas reduction as a metric of project success.*

CDFA should consider using net greenhouse gas (GHG) reduction as a metric of project success under the Healthy Soils Program because a net reduction metric would better reflect the full scope of benefits achieved over the course of the project. Although carbon sequestration does not directly reduce GHG emissions, it does help decrease the overall GHG budget for an agricultural operation. For example, the table below shows that an organic farm sequestered 1,953 kg of CO_2 equivalents per hectare annually. Additionally, the organic farm relies on biological forms of nitrogen rather than energetically intensive synthetic forms, which has a net lower energy use. Despite higher nitrous oxide release from the organic system, its overall greenhouse gas intensity was negative—meaning that it absorbed more CO_2 equivalents than it released—compared to the other systems, which had net GHG releases.

Global warming potential (GWP) of three cropping systems.

	Δ soil C[a,b]	N_2O flux[a,c]	Energy use[a,d]	Total GWP[a]	GHG Intensity[e]
No till	0	303	807	1110	330
Chisel Till	1080	406	862	2348	153
Organic	-1953	540	344	-1069	-207

a kg CO_2 ha^{-1} y^{-1} equivalents
b Average carbon change rates over 11 years.
c N_2O data were measured in 2008.
d Energy use is for a typical year using published values and field records.
e kg CO_2 Mg $grain^{-1}$ equivalents

Source: Cavigelli, M., M. Djurickovic, C. Rasmann, J. Spargo, S. Mirsky, and J. Maul. 2009. Global warming potential of organic and conventional grain cropping systems in the mid-Atlantic region of the U.S. Proceedings of the Farming Systems Design Conference, Monterey, California: 51-52.

Therefore, CDFA will be able to support a broader range of farms and practices by specifying that the goal of the Healthy Soils program is *net* GHG reductions for any given farm or ranch.

2. *Add crop rotation to the list of eligible practices.*

CDFA should add Conservation Crop Rotation (328) to the list of eligible practices because it is a fundamental soil-building practice. Planting different types of crops in sequence can result in numerous additional benefits to carbon sequestration, including reduced pest and disease pressure, increased soil cover, decreased erosion, and increased soil water-holding capacity.

3. *Allow applications of farm-produced compost as an eligible practice in the incentives program.*

CDFA should clarify that it will allow farm-produced compost as an eligible practice in the incentives program because compost made on-farm is an important practice for many organic farmers. On-farm composting reduces crop wastes and recycles them into useful nutrients for subsequent crops. It also reduces energy use to transport compost from facility to farm. Therefore, we encourage CDFA to clarify that, in addition to compost from certified facilities, on-farm compost is eligible for the incentives program.

4. *Consider strategies to spread incentives funding further.*

CCOF would support an incentives program that reaches all scales of farms and ranches. One strategy to increase the reach of funding would be to direct some funding for comprehensive farm and ranch energy audits. This would enable each farm and ranch to make an energy conservation plan including a range of practices and strategies to reduce net GHG emissions.

5. *Consider adjusting timing of solicitation release to better align with farming seasons.*

CDFA may consider adjustments in its solicitation for application as the program develops. Releasing the grant solicitation in May with a June deadline will likely be difficult for farmers and ranchers to respond to because these months are prime farming season. CCOF supports this timeline for the upcoming cycle and recommends that CDFA consider adjusting the solicitation release and deadline to late fall-early winter for future funding cycles to make it more feasible for producers to apply.

6. *Include co-benefits of organic farming practices under master list.*

CDFA stated that it is developing a list of co-benefits "to be given additional consideration during application review." Studies conducted at University of California—Davis have documented the following co-benefits of certified organic soil management practices in addition to sequestering carbon:

- Improved soil nutrient cycling
- Improved soil structure, resulting in increased water infiltration and soil water holding capacity
- Reduced soil erosion
- Healthier plants that are more resistant to crop diseases.

Additionally, some scientists have found that organic crops maintain yields during drought conditions because the soils have improved water retention.

Healthy Soils Demonstration Projects

CCOF supports the objective, proposed grant amount, and eligibility requirements that CDFA presented for the demonstration project component of the Healthy Soils Program. CCOF encourages CDFA to fund demonstrations on a range of operation scales and types to maximize the educational impact and relevance of the projects.

26 February, 2017

California Department of Food and Agriculture
1220 N Street
Sacramento, California, 95814

CENTER FOR
CARBON
REMOVAL

Dear Amrith Gunasekara,

The Center for Carbon Removal thanks and supports the California Department of Food and Agriculture for their progress on the Healthy Soils Initiative and Incentive programs as a means of meeting AB-32 emission mandates. As a non-profit organization dedicated to removing carbon pollution from the atmosphere, we strongly support the strong emphasis on actions and management practices associated with carbon sequestration. Additionally, we want to applaud the stakeholder organization and engagement through public meetings of the Environmental Farming Act Science Advisory Panel. With clear delineation of the many co-benefits of soil carbon building, the value of ecosystems services and carbon storage make California's agricultural soils a vital asset for economic and agricultural prosperity.

The outlined action items and accredited management practices that the CDFA has established in cooperation with methodology produced by the Air Resources Board offer a variety of valuable research opportunities with regard to soil priming and storage. As a next step, it will be critical to enhance this framework to make it as actionable as possible for the relevant organizations and stakeholders. For example, this incentives program can:

1. **Offer a more detailed plan for future tracking and reporting after the conclusion of project grants in 2020.** A valid and important concern of many soil scientist and agriculturalists alike is that soil priming and sequestering techniques will not be sufficiently followed by locking and conservation practices to ensure long term storage. It may also be valuable for the Air Resources Board to include in their methodology, a projection of CDFA's long term expectations regarding ideal soil carbon conservation and locking practices following project completion.
2. **Expand on the ability of soil carbon projects to benefit disadvantaged communities and educate or involve constituents and legislators.** While acknowledging that the primary incentive of projects ought to be the verified and maintained storage of carbon in agricultural soils, the continuation of successful techniques beyond 2020 will demand a framework that demonstrates soil's value to disenfranchised agricultural communities and curious constituents. To persuasively and effectively educate and assist disadvantaged communities, issues of target audience, regional and cultural diversity, and communal involvement will need to considered and clarified. .
3. **More clearly define the role of nonprofits, resource conservation districts, and academic institutions in partnership with industry and agricultural firms to promote the Healthy Soils Initiatives.** The partnership between agricultural implementers and academic or policy organizations will be a key allyship in the successful construction and verification of sequestration practices. However, avenues for non-profit and non-governmental actors to assist and coordinate with agriculturalists are not well established. The earliest possible involvement of these organizations and institutions offers collaboration among policy and soil science to produce projects that are well economically feasible, politically popular, and educationally engaging.

Clarification on the avenues for nonprofit or academic partnership, benefits for disadvantaged communities, and strategies for long term soil surveillance and securitization of carbon offer an opportunity to increase the involvement of non-agriculturalists and ensure long term success of pilot projects. By defining these elements early in the project application process, implemented solutions will be more adequately prepared to educate intended audiences, collaborate with relevant organizations and institutions, and retain sequestered carbon after funding concludes.

Respectfully Submitted,

Noah Deich
Executive Director
Center for Carbon Removal

About Us: The Center for Carbon Removal is a team of experts and advocates for a new kind of climate action: carbon removal. We empower scientists, policy makers, and industry leaders to embrace climate solutions that can build a cleaner, stronger economy. To achieve our mission, we conduct research, convene events, and curate an online hub for information and discussion on carbon removal. Visit our website to learn more (www.centerforcarbonremoval.org) or join the discussion on Twitter (@CarbonRemoval).

From: Trevor Anderson [tanderson@climateactionreserve.org]
Sent: Thursday, January 12, 2017 12:40 AM
To: CDFA OEFI@CDFA
Subject: Modeling Questions - Building Partnerships on Healthy Soil Summit

To Whom It May Concern,

Today's Joint USDA-NRCS and CDFA Summit on Building Partnerships on Healthy Soil has been very encouraging. I have been tuning in all day via webinar. The Climate Action Reserve (the Reserve) is currently reviewing existing models for quantifying greenhouse gas (GHG) emissions from improved nutrient management practices. The Modeling, Tools and Management Practice Panel Session was particularly helpful, especially Ms. Amy Swan's presentation on COMET-Planner and COMET-Farm. I want to ask Amy, Colorado State University, CDFA and the USDA and NRCS the following questions:

1. Do they (you) anticipate any funding shortfalls to COMET from the incoming U.S. administration that could potentially hinder the efforts to improve and expand the tools?
2. If so, how do they (you) plan to address them?

I am unsure if it will be possible to get the above questions asked during the Q & A session currently underway in the summit, but the answers would be very informative for the Reserve. If they not cannot be addressed during this final session, I would greatly appreciate it if you could get back to me at a later date with the answers.

Thank you for your support and for a great summit!

Best regards,
Trevor

Trevor Anderson
Policy Associate
Climate Action Reserve
601 West 5th Street, Suite 650, Los Angeles, CA 90071
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tanderson@climateactionreserve.org

Save the date for Navigating the American Carbon World 2017 – April 19-21 in San Francisco.

March 1, 2017
California Department of Food and Agriculture
1220 N Street
Sacramento, CA 95814
Re: Comments on Healthy Soils Initiative Draft Framework

Dear California Department of Food and Agriculture Staff and Members of the Environmental Farming Science Advisory Panel,

Community Alliance for Agroecology works alongside the most impacted communities of the San Joaquin Valley to address the environmental injustices perpetuated by the food and farming system and to create solutions that foster ecological balance, public health, and economic equality in the region. The San Joaquin Valley is California's agricultural production center and suffers from some of the most harmful air quality in the state. Additionally, the Air Resources Board Greenhouse Gas Inventory reports that the agricultural sector emits 8% of the California's total greenhouse gas emissions. The Healthy Soils Program presents an opportunity to explore sustainable solutions to climate change that benefit communities and hasten the adoption of on-farm environmental stewardship practices, while simultaneously addressing some of the region's most egregious health disparities caused by poor agricultural soil management. We thank you for your work in building this historic program and look forward to partnering to ensure the success of its implementation in California's most impacted regions.

Historic Barriers to Adoption of Environmental Stewardship Practices in the San Joaquin Valley California's San Joaquin Valley is home to the most agriculturally productive farmland in the nation, however historic and cultural barriers to adoption have caused the region to fall behind in the push towards greater environmental stewardship in the state. For instance, reported in the Ag Census from 2012, farms in Marin, Sonoma, and San Luis Obispo counties all reported 8-12 farms that piloted alley-cropping and silvopasture, one of the Healthy Soils Initiative proposed practices. In the same year Fresno County reported 0 farms using these practices[1]. Fresno County, despite leading the state in the output of milk, almonds and grapes, relies primarily on the UC Cooperative Extension and USDA Service Centers for technical assistance related to environmental stewardship programs. One small Resource Conservation District (RCD) in the Sierra foothills, run almost entirely by volunteer support, represents all of Fresno County. Without county-level infrastructure and investment in environmental stewardship, USDA and UC Coop Extension agents are burdened with the task of facilitating the outreach and engagement with growers on state programs in addition to federal programs, and adoption remains slow. We suggest that the Healthy Soils Initiative roll-out take this into

[1] California Agricultural Statistics 2012 Crop Year. United States Department of Agriculture. National Agricultural Statistics Service.

consideration and provide additional support to areas of the state that deal with a lack of TA capacity in environmental stewardship.

Technical Assistance in Disadvantaged Communities AB 1550 requires that 25% of the Greenhouse Gas Reduction Fund (GGRF) be directed to projects within and benefiting disadvantaged communities, 5% to projects in low-income communities or benefiting low-income households, and 5% to projects within low-income communities or low-income households within ½ mile of a disadvantaged community. As shown on CalEnviroScreen, many of the communities among the top 25% of the State's most overburdened are located in the San Joaquin Valley. These disadvantaged communities generally do not possess the infrastructure needed to support Healthy Soils implementation as these communities often lack RCDs and do not have a strong Natural Resources Conservation Service (NRCS) presence. In order to adhere to the requirements set forth by AB 1550 and ensure that the communities most impacted by climate change and greenhouse gases are benefiting from this program, CDFA must actively work to close the gap in resources that farmers in the San Joaquin Valley currently face. Additionally, only a small number of nonprofit organizations who work with small-scale and minority-operated farms are supporting this type of work. We suggest that CDFA prioritize technical assistance to small, disadvantaged farmers who can benefit from implementing innovative farmland management practices but do not have access to the resources and support needed to do so.

Linguistically Appropriate Outreach In Fresno County alone, almost half of the region's over 4,000 family farms are operated by ethnic minorities. More than 54% of these family operations are run by Asian and Asian American operators, the majority of which are refugee farmers from South Asia. There are over 900 Laotian and Hmong families running small-scale farm operations marketing over 100 varieties of produce and tens of thousands of Hmong and Lu-Mien refugees farm as their primary livelihood. Between 2002 and 2007 there was an over 20% increase in the number of farms owned and operated by Latinos, over 75% of those farmers being beginning farmers[2], speaking to the courageous move that many farmworkers are taking into farm ownership and operation. It is critical that CDFA oversee the translation of grant guidelines and solicitation materials for the Healthy Soils Initiative for access by historically disadvantaged farmers and ranchers. In the same way that the national EQIP program is structured to prioritize participation by Historically Underserved Farmers and Ranchers, we suggest that CDFA ensure participation by disadvantaged community residents and small farm and business-owners by conducting outreach efforts in-language and in-culture. We suggest that CDFA use administrative funds towards these ends, in order to avoid continuing to burden the limited bilingual staff at regional USDA and UC Coop Extension Offices. Alternatively, increased funding for Cooperative Extension to hire additional bilingual staff can support this process where RCDs are lacking altogether. In prior comments on the ARB funding guidelines for the GGRF we have provided a list of languages to staff for inclusion in the administration guidelines, including but not limited to Spanish, Hmong, Vietnamese, Chinese (Cantonese and Mandarin), and Punjabi.

Maximizing GGRF Co-Benefits to Disadvantaged and Small-Scale Agricultural Operations The Healthy Soils Initiative presents an opportunity to highlight the co-benefits of historically neglected farmers. For instance, Cal EnviroScreen deems South West Fresno as the single most environmentally burdened area of the state. When observing a map of where our small farms are

[2] Sowerwine, Jennifer. and Getz, Christy. 2013. The Changing Face of California Agriculture: Identifying challenges and providing opportunities for Southeast Asian and other minority farmers. Rural Connections.

located overlaid with CalEnviroScreen mapping tool, it is clear that a concentration of ethnic-owned small farms are located directly in some of the top 10% areas of environmental and social burden. These farmers are the least participant in government programs, yet they do the greatest work in building ecologically resilient farm-scapes that provide access to fresh produce for the local area. The San Joaquin Valley continues to suffer from some of the worst food insecurity in the nation. A strong co-benefit of small-scale production production is meeting local needs for fresh vegetables. We suggest that such co-benefits such as improved market channels and improved regional food security are counted as community co-benefits.

Eligible Practices We support the list of proposed practices that qualify a project for program funding. The named practices that are in line with existing NRCS suggested environmental stewardship goals are supported for their co-benefits of reducing pesticide and fumigant use, increasing water retention and holding capacity, and buffering against the runoff of nitrogen fertilizer and soil amendments into precious drinking water sources. The two non NRCS approved practices of Cropland Compost Application and Grassland Compost Application hold some areas of question for environmental justice around the mobility of nitrogen from these land-applications of compost. We are pleased to see a process underway to define eligible compost sources, feedstocks and determining C:N ratios in eligible compost applications for these 2 practices. We strongly recommend that these variable considerations be made clear in the funding guidelines and ensure that applicants understand the requirement that all compost sources comply with any additional regulations pertinent to their management systems, such as the National Organic Program guidance for USDA certified organic growers, the Food Safety Modernization Act Produce Safety Rule as well as any forthcoming regulatory processes resulting from the California organics management program under EPA.

Agriculture is critical to the economy and culture of our disadvantaged communities, and with sensitivity to local ecology can also have a positive impact on environment, health, and community food-access. International climate science continues to uncover that biodiverse and smaller scale agriculture is the key to a more resilient and climate friendly food system. We hope to see CDFA reflect these findings in the administration of the Healthy Soils Initiative, and empower small scale and agroecological growers to preserve culturally appropriate farming practices that cool the planet. Thank you for your leadership in this landmark funding program. Questions can be sent directly to Janaki Jagannath at janaki@allianceforagroecology.org

Janaki Jagannath
Coordinator
Community Alliance for Agroecology

Kevin D. Hamilton, RRT
Chief Executive Officer
Central California Asthma Collaborative

Sarah Aird
Co-Director
Californians for Pesticide Reform

From: Evan Edgar [evan@edgarinc.org]
Sent: Tuesday, January 24, 2017 12:48 AM
To: CDFA OEFI@CDFA
Subject: Comments on the Healthy Soils Initiative and CDFAs role on the AB 1045 Compost Use law

California Compost Coalition would like to clarify the intent of the AB 32 Scoping Plan language is that compost use is not just for grasslands, but also for irrigated croplands. Copied below is an excerpt from the Table in the working lands presentation by Alan V. Di Vittorio of Lawrence Berkeley National Laboratory on the CALAND model, where the modeling inputs low and high management scenarios for an incremental 10,000 acres each year, both for croplands (no till/cover crop) and grasslands, would be adopting sustainable agriculture practices, adding a total of 260,000 acres by 2030. However, compost use on irrigated cropland was not specifically mentioned and needs to be identified. We support the use of metrics and goal- setting to get to 2030, and specifically identifying compost use on irrigated cropland can accommodate a new 7 million tons in California. CCC added in the line items below the Table where 40,000 acres per year to 80,000 acres per years should be identified as low and high management scenarios.

5

Management scenarios

- **These scenarios are applied to the baseline, from 2017-2030**

Activity	Low management	High management
Forests - fuel reduction, restoration (state/private)	60,000 ac/yr through 2030	175,000 ac/yr through 2030
Forests – reforestation is implicit in the model	Increase rate 15% above BAU by 2030 (assume 15% above BAU rate in each year to 2030)	Increase rate 30% above BAU by 2030 (assume 15% above BAU rate in each year to 2030)
Croplands – conserve soil C (no-till/cover crop)	10,000 ac/yr through 2030	10,000 ac/yr through 2030
Meadow restoration - rangeland (state/private)	10,000 acres by 2030	30,000 acres by 2030
Grasslands – compost amendment (state/private)	10,000 ac/yr through 2030	10,000 ac/yr through 2030
Delta Fresh Wetlands Restoration (state/private)	15,000 acres by 2030	30,000 acres by 2030
Coastal/Tidal wetlands restoration (state/private)	30,000 acres by 2030	60,000 acres by 2030
Urban – Increase urban tree canopy fraction	20% above current by 2030 (same as baseline)	40% above current by 2030
Ocean – restore eelgrass beds	5% above current levels by 2030	10% above current levels by 2030
Croplands (irrigated) - compost amendment (CCC comments)	**40,000 ac/yr through 2030 3.5 million tons per year by 2030.**	**80,000 ac/yr through 2030 7 million tons per year by 2030**

According to CDFA, there are roughly 9 million acres of irrigated farmland, so if just 10,000 acres per year in developed, compost use on only 130,000 acres of working lands would represent only a 1.5% increase. According to UC Rangelands at UC Davis, there are 62.9 million acres of rangeland; pushing for another 130,000 acres would mean only a 0.2% increase. Neither could be classified as aggressive targets and barely qualify as a 'low management scenario', where agriculture could use all of the compost derived from organics recycling mandated by SB 1383 to mitigate methane, given more robust market development targets.

The following is recommended with supportive information:

- **Include Irrigated Cropland (compost use) in the model with a low and high management scenario of 40,000 acres per year and 80,000 acres per year**
- **Grasslands – compost amendment (state/private) -– Require CalTrans and Department of General Services and other state agencies to use compost following current state law and increase by over 10,000 acres per year**
- **Have CalRecycle prepared the Fourth Assessment of California Compost and Mulch-Producing Infrastructure for 2017**
- **Link compost use on irrigated croplands to the implementation of the Five Pillars programs by diverting organics form landfills to mitigate methane and producing compost to support the Healthy Soil Initiative and**
- **Starting 2018, have compost use (bulk and organic) be included in the County Crop Report and have CDFA and CalRecycle report compost use**
- **Include Irrigated Cropland (compost use) in the model with a low and high management scenario of 40,000 acres per year and 80,000 acres per year.**

CALIFORNIA COMPOST COALITION

Evan W.R. Edgar

California Compost Coalition
1822 21st Street
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CALIFORNIA
COMPOST COALITION

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neil@californiacompostcoaltion.org
Website:
www.californiacompostcoalition.org

January 13, 2017

Chief Rajinder Sahota and Assistant Secretary Claire Jahns
California Environmental Protection Agency
California Air Resources Board
1001 I Street Sacramento, CA 95814

Re: Comments on 2030 Target Scoping Plan Update
Public Workshop on Carbon Sequestration Modeling Methods and Initial Results for the Natural & Working Lands Sector

Dear Rajinder Sahota and Claire Jahns

The California Compost Coalition (CCC) is a statewide organization representing operators of permitted facilities involved in the processing and composting of green and food waste materials throughout California. On behalf of these companies, we respectfully submit the following comments on Public Workshop on Carbon Sequestration Modeling Methods and Initial Results for the Natural & Working Lands Sector for the 2030 Target Scoping Plan.

Composting and anaerobic digestion form the cement that binds the Governor's Five Pillars together. Eliminating organics from the landfills will mitigate methane generation as a short-lived climate pollutant to implement SB 1383 (Pillar 4), and instead, create biomethane power at anaerobic digestion facilities to generate more renewable energy to achieve the goals of SB 350 (Pillar 2) and carbon negative fuel for the CNG fleet that collects the organics and implements the Low Carbon Fuel Standard (Pillar 1) to displace diesel. The diverted food waste and digestate can be composted to sequester carbon and be integral to healthy soils (Pillar 5). Organic power and compost use have been deemed the most cost-effective greenhouse gas (GHG) reduction strategy that bonds all Five Pillars together. The California Legislative Analyst's Office determined the cost of composting and anaerobic digestion to be at just $9/ton of GHG reduction while the overall average is $57/ton.

CCC shares the vision to set 2030 Targets and develop a sustained funding mechanism to foster the use of compost on our working lands with a focus on irrigated croplands and provide incentives to develop the infrastructure for a low-carbon system in California and improve the sustainability of the California infrastructure. Without 2030 targets coupled with incentives, the regulatory certainty will wane and many projects underway will falter. We need these policy

drivers fortified with incentives to develop this multi-billion dollar low carbon future for the solid waste and recycling industry,

CCC has previously provided detailed verbal and written comments to your staff regarding the CARB/CalRecycle Technical Papers for the 2014 Update, which support the development of a low-carbon system in California today to improve the sustainability of the California infrastructure for tomorrow which includes more compost infrastructure development and compost use to support the Healthy Soils Initiative.

CCC would like to clarify the intent of the Scoping Plan language is that compost use is not just for grasslands, but also for irrigated croplands. Copied below is an excerpt from the Table in the working lands presentation by Alan V. Di Vittorio of Lawrence Berkeley National Laboratory on the CALAND model, where the modeling inputs low and high management scenarios for an incremental 10,000 acres each year, both for croplands (no till/cover crop) and grasslands, would be adopting sustainable agriculture practices, adding a total of 260,000 acres by 2030. However, compost use on irrigated cropland was not specifically mentioned and needs to be identified. We support the use of metrics and goal- setting to get to 2030, and specifically identifying compost use on irrigated cropland can accommodate a new 7 million tons in California. CCC added in the line items below the Table where 40,000 acres per year to 80,000 acres per years should be identified as low and high management scenarios.

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According to CDFA, there are roughly 9 million acres of irrigated farmland, so if just 10,000 acres per year in developed, compost use on only 130,000 acres of working lands would represent only a 1.5% increase. According to UC Rangelands at UC Davis, there are 62.9 million acres of rangeland; pushing for another 130,000 acres would mean only a 0.2% increase. Neither could be classified as aggressive targets and barely qualify as a 'low management scenario', where agriculture could use all of the compost derived from organics recycling mandated by SB 1383 to mitigate methane, given more robust market development targets.

The following is recommended with supportive information:

- **Include Irrigated Cropland (compost use) in the model with a low and high management scenario of 40,000 acres per year and 80,000 acres per year**
- **Grasslands – compost amendment (state/private) -– Require CalTrans and Department of General Services and other state agencies to use compost following current state law and increase by over 10,000 acres per year**
- **Have CalRecycle prepared the Fourth Assessment of California Compost and Mulch-Producing Infrastructure for 2017**
- **Link compost use on irrigated croplands to the implementation of the Five Pillars programs by diverting organics form landfills to mitigate methane and producing compost to support the Healthy Soil Initiative and**
- **Starting 2018, have compost use (bulk and organic) be included in the County Crop Report and have CDFA and CalRecycle report compost use**

Include Irrigated Cropland (compost use) in the model with a low and high management scenario of 40,000 acres per year and 80,000 acres per year.

Compost use on irrigated croplands is the biggest opportunity is currently underway at over 1,000,000 acres per year, and is not included the CALANDS model as a huge potential market.

- Low Management
    - Assumed - 1,000,000 acres baseline in 2017 (see below on assumptions)
    - 500,000 acres by 2030 to get 50% of new compost produced –
    - Add 40,000 acres each year
    - Possible 1.5 million acres using compost – 17% of all irrigated cropland

- High Management
    - Assumed - 1,000,000 acres baseline in 2017 (see below on assumptions)
    - 1,000,000 acres by 2030 to get 100% of new compost produced –
    - Add 80,000 acres each year
    - Possible 2.0 million acres using compost – 22% of all irrigated cropland

Grasslands – compost amendment (state/private) -– Require CalTrans and Department of General Services and other agencies to purchase compost following current state law and increase by over 10,000 acres per year.

Current law, as noted in ***PRC 42240, PRC 42241, PRC 42241.5*** and ***PRC 4224,*** requires state agencies to use compost with CalTrans starting in 1991, and Forestry, Parks and Recreation and General Services since 1993. For over 20 years the compost industry has attempted to implement these current laws and had to propose legislation, that failed, to add metrics, incentives, water efficiency linkages, and funding for compost use on these state lands. Compost use on state lands is not being tracked or reported, and is not being used in significant quantities. Compost us on state grass lands at just 10,000 acres per year is a starting point over 20 years in the making.

PRC 42240 requires that the Department of General Services and the board, in consultation with other affected state agencies, shall maintain specifications for the purchase of compost by the State of California. The specifications shall designate the state minimum operating standards and product quality standards. The specifications shall be designed to maximize the use of compost without jeopardizing the safety and health of the citizens of the state or the environment.

PRC 42241requires that on or after January 1, 1991, the Department of Transportation shall use compost in place of, or to supplement, petroleum-based commercial fertilizers in the state's highway landscape maintenance program.

PRC 42241.5 is where CalRecycle may develop a program to increase the use of compost products in agricultural applications. The program may include, but shall not be limited to, the following:
(a) Identification of federal, state, and local financial assistance.
(b) Cooperative efforts with appropriate federal and state agencies.

PRC 42243 requires that on or after January 1, 1993, the Department of Forestry and Fire Protection, the Department of Parks and Recreation, and the Department of General Services shall initiate programs to restore public lands that use compost, co-compost, rice straw, and chemically fixed sewage sludge and shall use those products or materials wherever possible.

CalRecycle 2010 Report – Third Assessment of California Compost and Mulch-Producing Infrastructure

There is a need for a CalRecycle Fourth Assessment Report soon for 2017, as it has been nine years since the last report.

- According to the CalRecycle 2020 Report
    - 5.76 million tons of compost produced in 2008
    - 56% agricultural sales
    - 3.2 million tons applied to agricultural
- Using 7 tons per acres average use – 460,000 acres using compost in 2008
- Croplands – irrigated – compost amendment use – not listed in AB 32 Working Lands CALAND model
- 9 million acres of irrigated farmland in use
- 460,000 acres using compost as a 2008 baseline – use as baseline for AB 32 Scoping Plan (2008)

- Assume 1,000,000 million acres using compost as a 2017 baseline for now based on 9 years of growth since 2008, and anecdotal market surveys since then
- Adjust baseline to 2017 with new CalRecycle Fourth Assessment study and CDFA organic input registry information

SB 1383 – Methane Mitigation – diversion of organic waste from landfill to compost use

- Another 7 million tons per year of compost may be produced and be available in the market between 2025 and 2030 as the Short-Lived Climate Pollutant Plan (SB 1383, Lara) get implemented to reduced all organics by 75% from the landfill disposal by 2025.
- By 2025, over 13.2 million tons of organics need to be diverted from landfills, representing over 5.7 million tons of GHG reductions, and by 2030, over 13.9 million tons of organics need to be diverted from landfills, representing over 6.0 million tons of GHG reductions
- These organics feedstock could produce about 7 million tons of new compost needing a market
- Healthy Soils Initiative is one of the Governor's Five Pillars
- Market potential at 7 tons per acres – for 7 million tons of compost by 2025 is 1,000,000 acres potential market

Beginning in 2018, require compost use (bulk and organic) be reported by CDFA, and County Crop Reports, recognizing AB 901 regulations

- Need CDFA to determine the amount of 'organic input material' category – compost – for both bagged and bulk compost in tons, since it has been a registration program only reported in dollars – to determine mill tax
- Since compost is an agricultural commodity, have the County Crop Report, report compost use in acreage each year starting in 2016
- CalRecycle will be implementing the AB 901 regulations in 2018 which can assist in reporting compost use to gauge the development of the market to 2020, 2025 and 2030.

We appreciate the opportunity to provide comments on these market concepts to implement current laws and to set 2030 goals that include irrigated croplands and on state lands.

Should you have any questions, please contact me at (916) 739-1200.

Sincerely,

Neil S.R. Edgar
Executive Director

January 19, 2017

Grant Cope, Deputy Secretary
California Environmental Protection Agency
1001 I Street, Sacramento, CA 95814

Jenny Lester Moffitt, Deputy Secretary
California Department of Food and Agriculture
1220 N Street, Sacramento, California, U.S.A. 95814

Scott Smithline, Director
CalRecycle
1001 I Street, Sacramento, CA 95814

Re: Implementation of AB 1045 (Irwin) - Composting and Organic Management

Dear Mr. Cope, Ms. Moffitt, and Mr. Smithline

The California Compost Coalition (CCC) is a statewide organization representing operators of permitted facilities involved in the processing and composting of green and food materials throughout California. On behalf of these companies, we respectfully submit the following comments on the implementation of AB 1045 (Irwin, 2015). CCC attended the December 22, 2016 Public Meeting on Composting and Organic Management, and have followed up to obtain copies of the presentations, to no avail at this point, and have scoured the Cal-EPA's website looking for recommendations for promoting organic waste processing infrastructure statewide.

CCC and all parties recognize the huge lift required to implement AB 1826 – mandatory commercial organic collection, and now SB 1383 – the short-live climate pollutant strategy. We have been anticipating these policies for years, being deeply engaged in the AB 32 Scoping Plan, its Updates, and the implementation of SB 605 charting the course for the short-live climate pollutant strategy. We have all rallied for cap-and-trade revenues and other incentives to energize compost and anaerobic digestion facility development. Even with those incentives, facility development is stalling out due to regulatory fatigue and the crashing of the urban wood waste market. Having been a huge supporter of AB 1045, we were hoping that after one year of dialogue, there would be more deliverables to discuss. AB 1045 was multi-pronged, requiring the assessment of the State's progress, promotion of compost use, and ensuring proper coordination of agency regulations and goals in their implementation. CCC has specific comments for each topic area and recommendations on **promoting compost use, assessing progress**, and **coordinating regulations**.

1822 21st Street • Sacramento, CA 95811 • (916) 739-1200 • Fax: (916) 739-1216
Neil@californiacompostcoalition.org • www.californiacompostcoalition.org

AB 1045 and Promoting Compost Use:

PRC 42649.87.
(a) The California Environmental Protection Agency, in coordination with the department, the State Water Resources Control Board, the State Air Resources Board, and the Department of Food and Agriculture, shall develop and implement policies to aid in diverting organic waste from landfills by promoting the use of agricultural, forestry, and urban organic waste as a feedstock for compost and by promoting the appropriate use of that compost throughout the state.

b) In developing policies pursuant to subdivision (a), the California Environmental Protection Agency shall promote a goal of reducing at least five million metric tons of greenhouse gas emissions per year through the development and application of compost on working lands, which include, but are not limited to, agricultural land, land used for forestry, and rangeland. The California Environmental Protection Agency shall work with the Department of Food and Agriculture to achieve this goal.

We appreciate the efforts of the Governor promoting The Healthy Soils Initiative over the last few years and the recent funding of $7.5 million. The HSI is laced with compost concepts, but without adequate metrics to assess the progress that could be made to divert the organic wastes resulting from both AB 1826 and SB 1383 towards compost use. CCC has estimated (see additional comments below) where irrigated cropland could use approximately 7 million tons of compost by 2030 to aid in diverting organic waste from landfills with a demand pull for compost products.

We have concerns that the AB 1045 process does not engage a broad enough group of stakeholders, (specifically, air districts, local governments, and other state agencies, who will be required to achieve the already-monumental infrastructure development effort needed, now that the landfill diversion of organics has more imminent target dates and much higher capacity needs, following the passage of SB 1383.

There ought to be a law to require compost use...and there are four laws on the books some since 1991 promoting compost use. Current law, as noted in ***PRC 42240, PRC 42241, PRC 42241.5,*** and ***PRC 42243*** requires state agencies to use compost, with CalTrans starting as far back as 1991, and Forestry, Parks and Recreation, and General Services since 1993. For over 20 years the compost industry has attempted to implement these current laws and has proposed legislation, SB 1345, (Chesbro, 2006), that failed, to add metrics. We sponsored legislation, AB 921 (Allen, 2011), to study incentives for water efficiency and greenhouse gas reductions. We have also recommended funding for compost use on these state lands using cap-and-trade revenue and an increased landfill tip fee. Compost use on state lands is not being tracked or reported, and is not being used in significantly quantifies. Compost use on state grass lands at just 10,000 acres per year is a starting point, as mentioned in the Public Workshop on Carbon Sequestration Modeling Methods and Initial Results for the Natural & Working Lands Sector for the 2030 Target Scoping Plan.

PRC 42240 requires that the Department of General Services and the board, in consultation with other affected state agencies, shall maintain specifications for the purchase of compost by the State of California. The specifications shall designate the state minimum operating standards and product quality standards. The specifications shall be designed to maximize the use of compost without jeopardizing the safety and health of the citizens of the state or the environment.

PRC 42241 requires that on or after January 1, 1991, the Department of Transportation shall use compost in place of, or to supplement, petroleum-based commercial fertilizers in the state's highway landscape maintenance program.

PRC 42241.5 is where CalRecycle may develop a program to increase the use of compost products in agricultural applications. The program may include, but shall not be limited to, the following:

(a) Identification of federal, state, and local financial assistance.

(b) Cooperative efforts with appropriate federal and state agencies.

PRC 42243 requires that on or after January 1, 1993, the Department of Forestry and Fire Protection, the Department of Parks and Recreation, and the Department of General Services shall initiate programs to restore public lands that use compost, co-compost, rice straw, and chemically fixed sewage sludge and shall use those products or materials wherever possible.

CCC would like to clarify the intent of the Scoping Plan language is that compost use should not be just for grasslands, but also for irrigated croplands, as we pointed out during the Public Workshop on Carbon Sequestration Modeling Methods and Initial Results for the Natural & Working Lands Sector. Copied below is an excerpt from the Table in the working lands presentation by Alan V. Di Vittorio of Lawrence Berkeley National Laboratory on the CALAND model, where the modeling inputs low and high management scenarios for an incremental 10,000 acres each year, both for croplands (no till/cover crop) grasslands, would be adopting sustainable agriculture practices, adding a total of 260,000 acres by 2030. However, compost use on irrigated cropland was not specifically mentioned and needs to be identified. We support the use of metrics and goals setting to get to 2030, and specifically identifying compost use on irrigated cropland can accommodate a new 7 million tons in California. CCC added in the line items below the Table where 40,000 acres per year to 80,000 acres per years should be identified as low and high management scenarios.

According to CDFA, there are roughly 9 million acres of irrigated farmland, so if just 10,000 acres per year are targeted, only 130,000 acres of compost use on working lands would occur, representing only a 1.5% increase. According to UC Rangelands at UC Davis, there are 62.9 million acres of rangeland; pushing for another 130,000 acres would mean only a 0.2%. increase. Neither could be classified as aggressive targets and barely qualify as a 'low management scenario', where agriculture could use all of the compost derived from organics recycling mandated by SB 1383 to mitigate methane, given more robust market development targets.

The following is recommended with supportive information to increase compost use:

- Include Irrigated Cropland (compost use) in the model with a low and high management scenario of 40,000 acres per year and 80,000 acres per year
- Grasslands – compost amendment (state/private) -– Require CalTrans and Department of General Services and other state agencies to use compost following current state law and increase by over 10,000 acres per year

Compost use on irrigated croplands is the largest current market, estimated at over 1,000,000 acres per year, and yet is not included the CALANDS model despite its huge potential growth.

- Low Management

- Assumed - 1,000,000 acres baseline in 2017
- 500,000 acres by 2030 to get 50% of new compost produced –
- Add 40,000 acres each year
- Possible 1.5 million acres using compost – 17% of all irrigated cropland

- High Management
  - Assumed - 1,000,000 acres baseline in 2017
  - 1,000,000 acres by 2030 to get 100% of new compost produced –
  - Add 80,000 acres each year
  - Possible 2.0 million acres using compost – 22% of all irrigated cropland

5

Management scenarios

- **These scenarios are applied to the baseline, from 2017-2030**

Activity	Low management	High management
Forests - fuel reduction, restoration (state/private)	60,000 ac/yr through 2030	175,000 ac/yr through 2030
Forests – reforestation is implicit in the model	Increase rate 15% above BAU by 2030 (assume 15% above BAU rate in each year to 2030)	Increase rate 30% above BAU by 2030 (assume 15% above BAU rate in each year to 2030)
Croplands – conserve soil C (no-till/cover crop)	10,000 ac/yr through 2030	10,000 ac/yr through 2030
Meadow restoration - rangeland (state/private)	10,000 acres by 2030	30,000 acres by 2030
Grasslands – compost amendment (state/private)	10,000 ac/yr through 2030	10,000 ac/yr through 2030
Delta Fresh Wetlands Restoration (state/private)	15,000 acres by 2030	30,000 acres by 2030
Coastal/Tidal wetlands restoration (state/private)	30,000 acres by 2030	60,000 acres by 2030
Urban – Increase urban tree canopy fraction	20% above current by 2030 (same as baseline)	40% above current by 2030
Ocean – restore eelgrass beds	5% above current levels by 2030	10% above current levels by 2030

Croplands (irrigated) compost amendment (CCC comments)	**40,000 ac/yr through 2030 3.5 million tons per year by 2030.**	**80,000 ac/yr through 2030 7 million tons per year by 2030**

AB 1045 and 5 million tons of Greenhouse Gas Reductions through compost use:

PRC 42649.87.b states that California Environmental Protection Agency shall promote a goal of reducing at least five million metric tons of greenhouse gas emissions per year through the development and application of compost. Using the adopted emission factors, it would take 9.8 million tons of compost use to reach this requirement, diverting almost 17 million tons of organics from landfills. Calculations are provided on the next page. Cal-EPA should provide the metrics and needed programs to achieve this requirement. Applying compost on irrigated croplands could use 7 million tons of compost by 2030, and Caltrans and the other state agencies should be able to use the rest.

PRC 42649.87.b	5,000,000	$MTCO_2e$	from compost *use*.
Decreased Soil Erosion	0.25	$MTCO_2e$/per ton compost	
Decreased Fertilizer Use	0.26	$MTCO_2e$/per ton compost	
Decreased Herbicide Use	0	$MTCO_2e$/per ton compost	
	0.51	$MTCO_2e$/per ton compost	
	9,803,922	**tons of compost to reach this goal**	
	0.58	conversion from feedstock to compost	
	16,903,313	tons of compost feedstock	
Source: https://www.arb.ca.gov/cc/waste/cerffinal.pdf			pg 19

AB 1045 and SB 1383 – Methane Mitigation – diversion of organics waste from landfill to compost use

By 2025, over 13.2 million tons of organics need to be diverted from landfills, representing over 5.7 million tons of GHG reductions, and by 2030, over 13.9 million tons of organics need to be diverted from landfills, representing over 6.0 million tons of GHG reductions.

AB 1045 and Assessing Progress:

PRC 42649.87 (a)
(1) Assess the state's progress towards developing the organic waste processing and recycling infrastructure necessary to meet the state goals specified in Assembly Bill 341 (Chapter 476 of the Statutes of 2011), Assembly Bill 1826 (Chapter 727 of the Statutes of 2014), the State Air Resources Board's May 2015 Short-Lived Climate Pollutant Reduction Strategy concept paper, and the Department of Food and Agriculture's Healthy Soils Initiative.

There has not been a full assessment of the compost industry and compost use since 2010 when CalRecycle published the *Third Assessment of California Compost and Mulch-Producing Infrastructure*, using 2008 data. Now is the time to have CalRecycle prepared the *Fourth Assessment of California Compost and Mulch-Producing Infrastructure* for 2017 in order to measure the current status.

- According to the CalRecycle Third Assessment Report:
  - 5.76 million tons of compost produced in 2008
  - 56% agricultural sales
  - 3.2 million tons applied to agricultural
- Using 7 tons per acres average use – 460,000 acres using compost in 2008
- Croplands – irrigated – compost amendment use – not listed in AB 32 Working Lands CALAND model
- 9 million acres of irrigated farmland in use

- 460,000 acres using compost as a 2008 baseline – use as baseline for AB 32 Scoping Plan (2008)
- Assume 1,000,000 million acres using compost as a 2017 baseline for now based on 9 years of growth since 2008, and anecdotal market surveys since then
- Adjust baseline to 2017 with new CalRecycle Fourth Assessment study and CDFA organic input registry information

To further the efforts of the state to determine the progress in achieving the goals of AB 1045, we recommend, starting in 2018, to have compost use (bulk and organic) be reported to CDFA, included in the County Crop Reports, while recognizing the upcoming AB 901 regulations.

- Starting 2018, have compost use (bulk and organic) be included in the County Crop Report and have CDFA and CalRecycle report compost use
- Need CDFA to determine the amount of 'organic input material' category – compost – for both bagged and bulk compost in tons, since it has been a registration program only reported in dollars – to determine mill tax
- Since compost is an agricultural commodity, have the County Crop Report, report compost use in acreage each year starting in 2016
- CalRecycle will be implementing the AB 901 regulations in 2018 which can assist in reporting compost use to gauge the development of the market to 2020, 2025 and 2030.

AB 1045 and Coordinating Regulations:

PRC 43032.
(a) The department, in coordination with the State Air Resources Board and the State Water Resources Control Board, shall develop a policy that promotes the development of coordinated permitting and regulation of composting facilities while protecting the environment.

The AB 1045 process would be most beneficial if it were to help develop a policy between CARB and the local air districts to recognize baseline conditions for organic waste management practices such as landfilling when adopting their local regulations and issuing permits. Some local air districts are treating new covered aerated static pile (CASP) compost facilities using the best available control technologies as a new source where the permitting and cost of off-sets would stop the development of the facility. When applying for air permits, baseline conditions need to be recognized where the net benefit of both greenhouse gas reductions and criteria pollutants can be demonstrated when diverting food waste from landfills to composting and/or anaerobic digestion facilities.

Cal-EPA should prepare a Program EIR for covered aerated static pile composting facilities similar to what CalRecycle prepared for anaerobic digestion. This Program EIR would be used to develop policies and recommendations to coordinate permitting by local air districts, where baseline conditions need to be recognized and that CASP facilities should not need to be treated under new source review.

AB 1045 and the Public Process

PRC 42649.87(c)
(2) Meet at least quarterly and consult with interested stakeholders, including, but not limited to, the compost industry, local governments, and environmental organizations, to encourage the continued viability of the state's organic waste processing and recycling infrastructure.
(3) Hold at least one public workshop annually to inform the public of actions taken to implement this section and to receive public comment

We look forward to being invited to the next quarterly meeting to share this letter. We would also ask that the quarterly meeting include representatives of CalTrans and General Services to inquire about their historical compost use and plans to utilize more compost in the future.

The annual public workshop was held during Christmas week, under short notice, and still attracted over 50 participants who are hungry to participate and provide information in the AB 1045 process. The information presented has not been made available to date and offered few new recommendations. We suggest that the next quarterly meeting be noticed to the public where the dialogue can continue.

PRC 42649.87(c)
(4) Develop recommendations for promoting organic waste processing and recycling infrastructure statewide, which shall be posted on the California Environmental Protection Agency's Internet Web site no later than January 1, 2017, and updated annually thereafter.

We have not located this information on the internet Web site to date.

We appreciate the opportunity to comment on the AB 1045 process and look forward to continuing as an active stakeholder.

Should you have any questions, please contact me at (916) 739-1200.

Sincerely,

Evan W.R. Edgar

Regulatory Affairs Engineer

From: Daniella Malin [daniella@coolfarmtool.org]
Sent: Tuesday, January 24, 2017 8:42 PM
To: CDFA OEFI@CDFA
Subject: QMTool development

Dear Geetika Joshi,

I'm interested in the QMTool development process and progress. I have been immersed in the topic of agricultural GHG quantification methodology since 2008, have done or participated in multiple model comparisons and have been project managing the development of the Cool Farm Tool now adopted by many of the worlds largest food companies (Unilever, Nestle, Danone, Kellogg, Pepsico, BASF, Tesco, Marks and Spencer, Syngenta, Heineken, McCain and many more).

I'm also working with Colorado State on a USDA grant we just received to improve the soil carbon quantification for both COMET-Farm and the Cool Farm Tool and possibly wire them together. I believe these tools could be of use in the QMTool and would love to be involved in the development of the QMTool.

Can you let me know who to reach out to about this?

Thanks very much.
-Daniella

Daniella Malin,
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Rory P. Crowley, B.A., Th.M.
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California Department of Food and Agriculture
ATTN: Geetika Joshi, PhD
1220 N Street
Sacramento, CA 95814

February 27th, 2017

RE: Soil Health Quantification Methods (QM); QM Tool; Almond Industry Biomass

Dr. Joshi:

My name is Rory Crowley. I am a recent graduate of the Almond Board Leadership Program, a visiting columnist for the Chico E-R covering agriculture, and an almond and walnut grower in Northern California for our 700+ acre family farm. I had the pleasure of seeing Secretary Karen Ross and Deputy Secretary Jenny Lester Moffitt at a recent Farm Bill listening session in Chico. During the session, I highlighted three areas of vital importance for the future of agriculture in California: enabling young farmers and ranchers to succeed; finding dynamic solutions for our agricultural biomass; and improving our soil's health.

I emphasized during my comments that these topics are not mutually exclusive. Indeed, they can and should be seen as mutually beneficial to and for one another. Whether conventional or organic, young farmers like myself have a renewed appreciation for sustainable food systems, and understand that the soil's health is vital for human health and longevity, as well as for the health of the environment. I write to you today with reference to the Quantification Methods that the CDFA is currently working on with the ARB. I see the formation of these as vital to tackling the issues surrounding biomass and soil health in California.

Over the last year and a half, I have dedicated a vast amount of time and effort to finding alternative uses for almond biomass, specifically for almond hull and shell. Traditionally, hull has been used for feed for the dairy industry, and shell has largely gone to cogeneration facilities or been utilized as animal bedding. As you know, the dairy industry is in decline and congregation is anything but certain for California's future energy system.

The fact is, the almond industry continues to grow and much of our biomass will not have an outlet. According to the Almond Board of California, hull biomass will increase by 1/3 by 2020 with new acreage coming into production; our shell will also grow by 1/3. I have proposed in multiple forums that we can return much of this biomass back to the orchard in a pre-composted. In so doing, we will not only be taking feed away from the dairy industry, we will also be building soil health by reintroducing carbon to our orchard systems.

The solution is scalable, near-term, and benefits California's environment, as well as the health of our orchards. However, for farmers to have buy-in, there must be incentive. As I perused the possible management practices that will receive incentives through the Initiative, compost application was on the list. While composting is key to building soil health, we must also have the option of non-traditional forms of composting, like infield so-called 'sheet composting.'

Traditional forms of composting are both costly and time consuming. Agricultural sectors in the state have high volumes of organic material byproducts. As stated, the almond industry has high volumes of almond hull and shell, both of which are high carbon and nutrient sources. Certainly much of this biomass will be composted in a traditional manner. However, given the high increase of volume projected over the next five years, I fear that we will not be able to compost all of the material by traditional methods. As such, I am asking the CDFA and the ARB to consider including in-field composting of almond hull and shell within their incentives framework.

Our company, along with many other farms in the area, is experimenting with putting the hull and shell back into the orchard in a pre-composted form. This kind of composting is a sheet composting process, whereby the material is allowed to compost infield, delivering nutrients to our trees and carbon back to the soil over the course of a season. This has a dual effect: first, it is lessening the almond industry's footprint by drawing back our involvement in methane emissions produced from dairy cows; second, it is actively returning nutrients and most importantly carbon back to the soil and building organic matter.

The end goal of my letter to the CDFA is to ask for a wider or alternative definition of 'composting.' The inclusion of almond biomass, or other forms of agricultural biomass, in a pre-composted form, must be included in the Initiatives QM and its related tool. Please consider this request and let me know if I can offer any further assistance to the great work the CDFA is currently undertaking.

Gratefully yours,

March 1, 2017

Scientific Advisory Panel
Office of Environmental Farming & Innovation
c/o Amrith Gunasekara, Ph.D.
California Department of Food and Agriculture
1220 N Street
Sacramento, CA 95814

Submitted via email to: cdfa.oefi@cdfa.ca.gov

Re: Healthy Soils Incentive Program

Dear Chair Cameron:

Please accept the following feedback from Environmental Defense Fund (EDF) in response to the public solicitation for comments on the Healthy Soils Incentive Program (here forward "HS Incentive Program") presented during the Scientific Advisory Panel (SAP) meeting on January 19.

We have two main recommendations for the proposed HS Incentive Program based on the January 19 presentation.

1. **Consider Priority and Focus on Included Practices**
   EDF commends the comprehensive list of practices California Department of Food and Agriculture (CDFA) has included in the HS Incentive Program. In considering the Project Quantification for the included practices, we strongly encourage the prioritization of the practices based on the scientific certainty of their GHG benefits. Practices such as improved fertilizer management to decrease nitrous oxide (N_2O) and hedgerow planting to increase carbon sequestration have reliable and quantifiable net GHG benefits. Other practices, such as conservation tillage and cover crops, are worth encouraging for their overall environmental and soil health benefits, but CDFA and the California Air Resources Board (ARB) should be cautious in the evaluation of their carbon sequestration benefits.[1]

[1] Other management practices tentatively included for incentives: mulching, cropland compost application, grassland compost application, herbaceous wind barriers, vegetative barriers, riparian herbaceous cover, contour buffer strips, field border, filter strip,

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As the SAP recognizes, broadly applied practice-based recommendations for carbon sequestration and greenhouse gas (GHG) mitigation are challenging when trying to address net reductions of GHG emissions throughout California's complex agroecosystems. EDF's team of scientists and scientific partners have investigated various practices on a number of crops which can generate mitigation and sequestration of greenhouse gases on Natural and Working Lands in California and we strongly encourage CDFA to prioritize the use of Greenhouse Gas Reduction Funds (GGRF) to support the implementation of practices that demonstrate consistent net GHG benefits to the environment. We recommend that the ranking and scoring of practices included in HS Incentive Program be prioritized using the latest peer-reviewed science for overall GHG benefits.

While there is mention of the HS Incentive Program accounting for both sequestration and mitigation opportunities, both the presentation and the conversation during the SAP meeting focused on the sequestration potential for natural and working lands as a carbon sink. As EDF mentioned in related comments to ARB on the Draft Scoping Plan, we encourage a review of additional journal articles on the sequestration potential of the practices mentioned in the HS Incentive Program. Further comments on these practices are provided below.

Carbon Sequestration

It is clear that CDFA is thoughtfully considering a variety of agricultural working lands practices that can help mitigate greenhouse gas emissions and/or sequester carbon and we strongly encourage additional research and investigation in this space. Given the state of the science on soil carbon sequestration, recommendations for practices to incentivize that sequester carbon must address potential constraints, as outlined in Powlson et al, 2010.[2] Some of the practices identified in the presentations during the SAP meeting on January 19 (conservation tillage and the use of cover crops) have been shown to improve soil health; EDF supports and promotes the use of such practices to increase soil health as part of the broader Healthy Soils Initiative.[3] However, varied results in the scientific literature indicate that these practices, implemented individually, may actually increase or decrease overall sequestration depending on soil type, geography, and additional interacting practices. Additionally, methods of implementation of these practices varies significantly between row and perennial crops.

Specifically for no-till, early suggestions that this practice could sequester soil carbon have been discredited; it appears that no-till redistributes carbon within the soil profile but does not sequester additional carbon.[4] In addition, it appears that the effects of no-till on nitrous oxide (N_2O) emissions

windbreak/shelterbelt establishment/renovation, riparian forest buffer, and silvopasture. (CDFA SAP Meeting, January 19, 2017, https://www.cdfa.ca.gov/oefi/efasap/docs/Binder-EFSAP-Meeting-01192017.pdf).

[2] Powlson, Whitmore and Goulding, 2010. Soil carbon sequestration to mitigate climate change: a critical re-examination to identify the true and the false. European Journal of Soil Science, Feb 2011, 62, pp.42-55

[3] https://www.cdfa.ca.gov/oefi/healthysoils/docs/HealthySoilsFactSheet.pdf

[4] Powlson, D.S., Stirling, C.M., Jat, M.L., Gerard, B.G., Palm, C.A., Sanchez, P.A. and Cassman, K.G., 2014. Limited potential of no-till agriculture for climate change mitigation. Nature Climate Change, 4(8), pp.678-683

are highly variable, are not clearly expressed unless no-till is maintained for more than 10 years, and in some cases no-till may actually increase N_2O emissions.[5,6]

For cover crops, a recent meta-analysis concludes that cover crops can sequester soil carbon, although the extent of carbon uptake is ultimately limited by SOC saturation.[7] However, increasing soil organic carbon can increase N_2O emissions, leading to uncertain net impacts in GHG emissions.[8] Another recent meta-analysis likewise concluded that the impact of cover crops on N_2O emissions was extremely variable, in some cases leading to a decrease but in other cases leading to an increase in N_2O emissions.[9]

The application of compost to grasslands has shown promise in a long-term trial on a valley grassland and a coastal grassland.[10] However, this is a limited data set in a single microclimate and should not be extrapolated to other grasslands in California. EDF supports the additional trials by the Natural Resource Conservation Service and the California Resource Conservation Districts of compost application on rangelands throughout the state. The results of those studies should be used to update the criteria for crediting practices under the HS Incentive Program.

The one practice where there is significant science to support carbon sequestration is the avoided conversion of rangelands to croplands or urban infrastructure. When grasslands are disturbed, such as when the land is tilled for crop cultivation, a significant portion of the stored carbon oxidizes and decays, releasing CO_2 into the atmosphere. This is carbon which has been stored in the soil over decades by natural cycles of growth and decay. By preserving intact grasslands or rangelands, CDFA can maintain the carbon sequestered throughout the state. This is particularly important as rangeland ecosystems cover approximately half the land area of California.[11, 12]

For all practices included under the HS Incentive Program, we recommend that CDFA and ARB provide the literature sources used to justify the inclusion of these practices, in order to provide agricultural proponents with a full picture of various working lands' sequestration capacity and net carbon benefit over time.

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[5] Kessel, C., Venterea, R., Six, J., Adviento-Borbe, M.A., Linquist, B. and Groenigen, K.J., 2013. Climate, duration, and N placement determine N2O emissions in reduced tillage systems: a meta-analysis. Global Change Biology, 19(1), pp.33-44

[6] Six, J., Ogle, S.M., Conant, R.T., Mosier, A.R. and Paustian, K., 2004. The potential to mitigate global warming with no-tillage management is only realized when practised in the long term. Global change biology, 10(2), pp.155-160.

[7] Poeplau, C. and Don, A., 2015. Carbon sequestration in agricultural soils via cultivation of cover crops–A meta-analysis. Agriculture, Ecosystems & Environment, 200, pp.33-41.

[8] Bos, J.F., ten Berge, H.F., Verhagen, J. and van Ittersum, M.K., 2016. Trade-offs in soil fertility management on arable farms. Agricultural Systems

[9] Basche, A.D., Miguez, F.E., Kaspar, T.C. and Castellano, M.J., 2014. Do cover crops increase or decrease nitrous oxide emissions? A meta-analysis. Journal of Soil and Water Conservation, 69(6), pp.471-482.

[10] Ryals, R., Silver, W.L., 2013. Effects of organic matter amendments on net primary productivity and greenhouse gas emissions in annual grasslands. Ecological Applications, 23(1), pp.46-59.

[11] Brown, S., A. Dushku, T. Pearson, D. Shoch, J. Winsten, S. Sweet, J. Kadyszewski. 2004. Carbon supply from changes in management of forest, range, and agricultural lands of California. Winrock International, for the California Energy Commission, *PIER Energy-Related Environmental Research*. 500-04-068F. 144 p

[12] Havstad, K., D. Peters, B. Allen-Diaz, J. Bartolome, B. Besterlmeyer, D. Briske, J. Brown, M. W. Burnson, J. Herrick, L. Huntsinger. 2009. The Western United States Rangeland: A Major Resource. Grassland: quietness and strength for a new *American agriculture. American Society of Agronomy* 75-94

When developing the Project Quantification criteria for HS Incentive Program practices, we encourage CDFA to rank practices based on their scientific certainty. For most of the sequestration practices, we recommend that CDFA place them at the bottom of the priority list and for practices which permanently mitigate emissions, we recommend that CDFA place them higher on the priority list. Furthermore, to reduce the uncertainty of the GHG benefits of these practices, we encourage additional research be conducted by crop, geography, and soil type to better understand the full GHG benefits of these practices. Finally, CDFA can incorporate findings from California-specific research on these various practices which has been done by UC Davis researchers Martin Burger,[13] Will Horwath, and Chris van Kessel and as summarized in the Nicholas Institute's report series *Greenhouse Gas Mitigation Opportunities*.[14]

Mitigation

Given the complexity and uniqueness of California's diverse agricultural crops, sequestration and mitigation potential throughout the state will vary significantly and cannot be incentivized the same for all California crops which is why we courage a scoring or prioritization methodology over a more traditional quantification approach used for carbon offsets. At the top of this priority list should be practices that address the significant potential for N_2O emissions reductions in California presented by Martin Burger to ARB in June 2016 and more recently by Will Horwath.[15]

In the SAP meeting presentation on January 19, 2017, it is not clear how practices will be prioritized for different California crops or practices. Practices appear to be recommended for all crops and all locations despite the fact that there are significant differences on how practices and implemented and potential outcomes for those different crop. The HS Incentive Program should differentiate, even at a high level, between crops and not recommend all practices to all crops and geographies.

Thought must be given during program design to the potential incentive for each type of practice and crop. The cost and ongoing operation of some practices will require a larger investment over time. Other practices will require a larger investment up front. Practice implementation costs will also depend on acreage and crop type. The initial proposed maximum amount of $25,000 incentive per project will need to be considered in this context.[16]

CDFA should also consider the timing of the implementation of practices. The timing of the implementation of practices may not align well with the timing for the HS Incentive Program. Some practice require multiple seasons to accomplish demonstrated net GHG benefits, while other practices cannot be implemented until the start of the next growing season in over a year's time (compared to

[13] Burger, Martin. "Evaluating Mitigation Options of Nitrous Oxide Emissions in California Cropping Systems." Seminar: Air Pollution Research Seminar Series. California Air Resources Board, 16 June 2016.
[14] Information Support for a Greenhouse Gas Reduction Strategy for California Agriculture. Duke Nicholas Institute for Environmental Policy Solutions, Feb. 2014. Web. 13 Jan. 2017. <https://nicholasinstitute.duke.edu/focal-areas/technical-working-group-agricultural-greenhouse-gases-t-agg/california-project>.
[15] Burger, Martin. "Evaluating Mitigation Options of Nitrous Oxide Emissions in California Cropping Systems." Seminar: Air Pollution Research Seminar Series. California Air Resources Board, 16 June 2016.
[16] Slide 38, https://www.cdfa.ca.gov/oefi/efasap/docs/Binder-EFSAP-Meeting-01192017.pdf

the proposed timeline of project implementation beginning October 2017[17]). Conversely, some practices could be implemented multiple times for different crops on the same field over one year. The Project Quantification criteria should include the prioritization for the timing of the practice benefits.

During the next SAP meeting the program staff should discuss how CDFA, with the support of ARB, intends to determine the prioritization of practices and process for determining the appropriate incentive amount for each practice and crop given differences in GHG benefits, implementation timing and practice costs. We encourage CDFA to incentivize practices that have demonstrated GHG net benefits in California over the timing of the HS Incentive Program funding and recognizes the variation in benefit and therefore incentive value for crops and practices.

2. **HS Incentive Program Implementation**

Just as with SWEEP, we would encourage the use of technical assistance for growers looking to implement practice changes and submit applications to this incentive program. The success of SWEEP has been attributed in part to the support from groups providing technical assistance with program applications. We encourage CDFA and ARB to describe what, if any, connection exists between reductions through the HS Incentive Program and the Scoping Plan target reductions from natural and working lands.

Regardless of the chosen quantification methodology and practices, details of planned project verification methods must be outlined early in program development to ensure that the verification method can distinguish between types of practice implemented, time frames for implementation and resulting benefits. The SWEEP model for verification provides project flexibility and is a good example for the developing HS Incentive Program verification.

Finally, to reduce the data burden on growers, CDFA should consider other programs (like NRCS conservation planning and Irrigated Lands Regulatory Program reporting) that already collects the data necessary to show the practice implementation. That way, growers will not need to duplicate efforts in reporting and can perhaps streamline efforts to demonstrate their stewardship.

We thank CDFA's Scientific Advisory Panel for the opportunity to provide comments. We look forward to continued collaboration with CDFA, ARB and other stakeholders throughout the design and implementation of the Healthy Soils Incentive Program to reward California producers for ambitious and innovative practices that reduce greenhouse gases and sequester additional carbon in California's working lands.

Sincerely,

Robert Parkhurst
Director, Agriculture Greenhouse Gas Markets
Environmental Defense Fund

[17] Slide 43, https://www.cdfa.ca.gov/oefi/efasap/docs/Binder-EFSAP-Meeting-01192017.pdf

Farm Fuel Inc.
organic soil amendment & mustard seed biodiesel

Office of Environmental Farming & Innovation
California Department of Food and Agriculture
1220 N Street
Sacramento, CA 95814

Dear CDFA,

We at Farm Fuel are enthusiastic about the Healthy Soils Program and hope to assist Central Coast farmers in applying for incentive grants in the first round. We were successful in helping Whiskey Hill Farm with their SWEEP grant in 2016, and we enjoy developing beneficial working relationships with farmers to help them meet their goals and to increase the number of farms utilizing sustainable practices in California. The purpose of our business is to provide alternatives to chemical fumigation for both conventional and organic growers. Our mustard seed meal product and anaerobic soil disinfestation (ASD) process are at work on thousands of acres in California already. Enhancing soil microbial action with mustard seed meal and mustard cover crops can lead to increases in soil organic matter, water holding capacity, and general health of soils. We look forward to learning how best to measure soil carbon increases through the Healthy Soils process.

As a comment on the upcoming grant criteria being developed by CDFA at this time, we would like to make a strong recommendation that demonstration farms be developed in 12 distinct regions of the state where farming conditions are different in terms of soil types, predominant weather patterns, and typical crop selections. In the central coast region, a farm should be selected that produces both berries and vegetables, and perhaps includes an orchard.

To enhance the educational component of the demonstration farm, we feel a site should be selected that already includes a classroom or large barn. We have attended many field days in places where nobody could sit down, the (often) internationally renowned researcher had to speak in windy or rainy conditions, and it was difficult to take notes. There is very little take-away from a meeting like this.

In order to scale up proven practices and appeal to new, younger farmers, we propose that demonstration farms be selected to be fully advantageous learning centers with space for microscopes hooked up to digital screens, online access to websites, projectors for powerpoints, blackboards, and all the advantages of a modern classroom/lab with the farm field study area right outside the door. Would educational equipment like this be eligible for funding along with tables and chairs?

P.O. Box 1413 Freedom, CA 95019 831.763.3950
www.farmfuelinc.com info@farmfuelinc.com

We wonder if these demonstration farms need to be family-owned farms or could they be non-profits or farms with long-term leases?

We look forward to following the progress of the Healthy Soils grant process, and we hope many, many farmers in the state can learn to mitigate some of the effects of climate change on their own farms starting this year.

Warmly,

Ellen Farmer
Marketing and Sales Manager
Farm Fuel Inc.

From: Victoria Vegis [victoria@foris.io]
Sent: Thursday, February 16, 2017 9:53 PM
To: CDFA OEFI@CDFA
Subject: Climate Smart Agriculture-Healthy Soils Webinar

Carolyn,
It was an outstanding webinar. It more than validated the foris.io direction of integration of all of the data available for growers to give them the management tools to make efficient decisions. We will use machine learning, big data analytics, current sensor data and IBM's Watson™ to give growers an advantage of having all pertinent knowledge in the palm of their hands.

I was hoping that you might guide me to some resources for some data we are seeking.

- One of the aspects we want to integrate is the current government regulations, requirements, and reports required of growers. Is there a resource where we can pull this information and integrate it into our system
- Is there any data available on how many farms use various forms of data generating equipment, i.e. moisture sensors, drone sensors, etc. We would like to know what number of farms have the various types of data generated.

Also, in the Healthy Soils Initiative that you mentioned in the seminar, nothing is mentioned regarding for-profit small entrepreneurs who are focusing on soil and crop health. Is that an oversight?

Looking forward to your response.

Regards,
Vicki

Victoria [Vicki] Vegis
Founder • President

Enabling "Just Enough • Just In Time" soil and crop Management

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Please consider the environment before printing this email.

From: Barbara Gemmill-Herren [bg11@mac.com]
Sent: Wednesday, March 01, 2017 3:34 AM
To: CDFA OEFI@CDFA
Subject: comment on Healthy Soils Initiative Framework

Dear CDFA,

I would like to make the following comment on the Healthy Soils Initiative Framework.

As I understand it, you will accept applications of compost as a practice within this framework, but not the making of compost. It seems as if the regulatory framework will only allow large, centralized facilities for producing compost, or operations on a single farm. But it is very difficult for farmers to economically make their own compost. A very green, progressive alternative would be to explore small cooperative compost-making facilities; in Capay Valley where we farm, this has been proposed as a citizen priority. In the discussion today at the CALCan Summit, it was pointed out that such a small operation would have a hard time overcoming water regulations, but surely this can be addressed, a small integrated facility with small scale water treatment is quite possible in a rural community, and could provide a viable rural enterprise.

I hope you may be able to integrate such possibilities into the Framework.

best,

Barbara

Barbara Gemmill-Herren
Vitus and Ovis Vineyard
Capay, California

From: Aaron Gilliam [agcypress@gmail.com]
Sent: Friday, February 10, 2017 1:10 AM
To: CDFA OEFI@CDFA
Subject: Public comment on CDFA Healthy Soils Initiative- Aaron Gilliam

Good afternoon,

I would like to provide public comment on the Healthy Soil Initiative specifically in relation to the Management Practices included for Incentive programs.

Currently the only Grassland management practice on the list of tentatively fundable practices is spreading compost. I support the inclusion of this practice, but think there is a great deal of both soil and ecological benefits that are being missed if we do not address the larger grassland management practices.

Grasslands have already been identified as having a large potential for contribution to the sequestration of atmospheric carbon, and given that their carbon storage is primarily held below ground, it is not at threat of being lost in the event of a wildfire. Currently on public and private lands the management is either grazing, haying, mowing, spraying or non-management. Each of these practices has its own effect on the health of the soil. Depending on how, when and where they are applied they can either maintain the existing health of the soil, they can increase it, or they can decrease it. When the soil is healthy, the plant community diversifies and the plants that grown are able to grow deeper roots and pump more carbon out of the air and into the ground.

Here I would like to focus specifically on the different practices of **grazing** and their varying effects on soil health and thus the health of the grassland plant community that does all the carbon sequestration.

California grasslands have declined in productivity, diversity, and draught tolerance from their historical capacity prior to the introduction of Spanish cattle and sheep operations in the mid 18th century. Along with the spread of non-native annual grasses and reduced soil health that has resulted from overgrazing of our rangelands, further degradation has resulted from breaks in critical ecological cycles that keep wild species of grazing animals moving in dense herds across the grasslands (severe reduction and some extinction of large predators, disruption to migration corridors, reduced flow in seasonal and perennial water resources, etc.)

In the present, our conventional model of grazing ("set stocking") continues to reduce health and productivity of the grasslands soils. So, although they do still function to sequester carbon, they are doing so at an increasingly reduced capacity. There are however other way of managing livestock that mimic the historic movements of dense herd of ruminants that create the soil surface conditions for improving soil health while at the same time fostering increased biodiversity and supporting the perennial native species of grass that hold the greatest capacity for carbon sequestration. These practices (rotational grazing; high density grazing; mob stocking;

management intensive grazing, etc) have the ability to rebuild the health of the soils so they can in turn filter and hold more water, grow healthier deep-rooted grasses, and sequester more carbon. However these regenerative grazing practices require an investment in infrastructure and equipment and they require considerably more labor and management, which is to say that they are far more costly and can not financially compete with the conventional model. The conventional practices set the price of production in the meat industry, and even then, most ranches in California are operating at a loss every year (National Cattlemen's Association).

It is here that the **Healthy Soils Initiative could help turn the tide towards better grazing practices**. Without some sort of financial incentive, these regenerative practices, at whatever scale, will not be economically competitive with the conventional practices that continue to reduce our grasslands capacity to store water and carbon. The research has been done that shows how beneficial these regenerative grazing practices can be (https://vimeo.com/181861077).

Please consider funding the investment in infrastructure, equipment and increase labor required for ranchers and grazers to revolutionize their land management and turn the pervasive story of grassland degredation into a story of large-scale ecological health, abundance and diversity that will play directly into the management of carbon in our atmosphere.

Thank you for taking the time to consider my comments.

Sincerely,

Aaron Gilliam

From: Hollie Hall [hollierhall@gmail.com]
Sent: Thursday, March 02, 2017 4:17 AM
To: CDFA OEFI@CDFA
Subject: Healthy Soils Initiative Comments

To Whom it May Concern,
Regarding the CDFA hosted discussion regarding the Healthy Soils Program framework. My recommendations are to:
1. Provide information regarding local resource use practices with recommendations to fund projects that involve small scale mixed use farms and cannabis farms specifically, that implement holistic property management plans.
2. Secure funding to systematically quantify baseline and improved soil health conditions on farms geographically situated within sub-watersheds. Help those farmers to continue to transition away from potting soil to living soil cultivation systems. AND collect additional climate data at the same time to inform the development of (cannabis!) appellations.
First impressions garnered via the first stakeholder meeting are:
1. The focus is on the implementation of healthy soil practices that store carbon in an effort to offset climate change. This focus specifically supports the type of outdoor full sun food and cannabis cultivation occurring in northern California.
2. While not stated explicitly, the language used led me to believe that the current envisioned project locations will be large-scale food farms. There was no discussion of crop diversity. Crop diversity is an extremely important component to building healthy soils that store carbon as it reduces the need for pesticide and insecticide use and allows for no- till operations.
3. Science appears to be a core value of the program. The metrics presented for quantifying change in soil health over time are (in the presenter's words):
- Soil carbon & total organic matter content
- Bulk density
- Soil texture
- pH
- Species composition
- Soil aggregate stability
- Forage production
- Infiltration rate
- Compaction
- Total N in soil solution
- Wildlife identification

It is my professional opinion that the following soil metrics will provide a more cost effective approach to quantifying soil health:

- Total soil fertility profile

- Percent soil carbon

- Total organic matter content

- pH

- Microbial abundance and species composition

- Water holding capacity

- Nitrogen to Carbon ratio

4. In my opinion, forest management must be a fundable component where farms and forests co-exist. Northern California watersheds are covered with dense unmanaged recovering timberlands that use way too much water, degrade habitat, create fire risk and contain valuable soil building, carbon rich, organic matter.
5. Small farms must be fundable. In Humboldt, Trinity and Mendocino Counties, the cultivated area on most cannabis farms ranges from 1/4 - 1 acre in size. These farms are the bread basket of the Northern portion of the state. While the cultivated area is small, farmers manage adjacent forest and wildlands that require additional funds to manage in a manner that stores carbon rather than creates a potential source of atmospheric carbon via forest fire.

With my best regards,
Dr. Hollie Hall

~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Hollie Hall, PhD
Watershed Resources Specialist

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95518
~ ~

"Anyone who can solve the problems of water will be worthy of two Nobel prizes - one for peace and one for science." John F. Kennedy
~~~~~~~~~~~~~~~~~~~~~~~~~~~~

From: John S. Pomeroy, Jr. [oaklandfarmer@gmail.com]
Sent: Tuesday, February 28, 2017 6:40 PM
To: CDFA OEFI@CDFA
Subject: Re: Healhty Soils Framework-Public Comment Requested

Hello Ms. Uber-

As the president of the East Bay Community Guild (EBCG, a chapter of CA Guild [not affiliated with CA Grange]), I would like to offer some comments on the attached framework (which is amazing!).

On page 8, compost application is addressed, but I didn't see anything about compost *creation*. Understandably, much of the traditional soils information is geared toward rural areas, but much of the food waste that contributes immensely to GHG is created in urban areas (where the food is shipped). By encouraging intelligent metropolitan composting systems, the benefits are multiple: off-gassing of decomposing materials is a large contributor to GHG, but intelligent systems can utilize those gases. Additionally, by composting where the waste is located, less transportation is needed, also reducing GHG from buying fuel for transport. Lastly, through controlled systems, food waste can be utilized for its highest purpose, not just immediately directed to compost. Animals (livestock, birds, worms, fish) can process certain single-source streams most efficiently (with the added benefit of manure/frass/etc).

We would also really like to see an educational component, perhaps curriculum developed (initially) for FFA/4-H, illustrating the importance of healthy soils for conservation practices: life in soil means water in soil (water is life) and water in soil means that less irrigation is needed. With approximately 85% of CA's water consumption is agriculturally driven, healthy soils will maximize irrigation efficiency.

The systems that EBCG is supporting are many, including producers of human goods like cider. Food waste is a big problem in metropolitan areas, but as with most problems, offers a unique opportunity. Please don't hesitate to reach out should you have any questions or would like to talk more.

Thank you for doing this very important work!

Best,

John S. Pomeroy, Jr.
415-439-3798

From: Uber, Amy@CDFA [mailto:Amy.Uber@cdfa.ca.gov]
Subject: Healhty Soils Framework-Public Comment Requested

Dear Stakeholders,

In partnership with the Environmental Farming Act Science Advisory Panel, CDFA's Office of Environmental Farming and Innovation is seeking comments on the Healthy Soils Program framework. Key components of the framework are described in the PowerPoint presentation attached. CDFA will accept comment letters until March 1, 2017. All comment letters should be sent/emailed to cdfa.oefi@cdfa.ca.gov. There will be additional opportunities to provide comments on the Healthy Soils Program following the March 16th, 2017, meeting of the Environmental Farming Act Science Advisory Panel in Sacramento.

Kind regards,

Amy Uber, M.P.S., M.S.

Senior Agricultural Economist
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<image001.jpg>

"We are what we do. Therefore, excellence is not an act, but a habit" -Aristotle

<HSP Framework EFA-SAP Meeting Jan 19 2017.pdf>

From: Megan Kemple [megank@efn.org]
Sent: Tuesday, February 28, 2017 11:39 PM
To: CDFA OEFI@CDFA
Subject: comment on Healthy Soils Incentive Program

Please consider this comment on the Healthy Soils Incentive Program.

I understand that one of the proposed eligibility requirements for funding is that a project must decrease GHG emissions during the project period, as compared to existing practices.
I think it is important to consider whether or not existing projects utilizing climate friendly agriculture practices also reduce GHG emissions and how to incentivize farmers and ranchers to continue the practices they are already utilizing. It seems to me the current proposed design incentivizes those who are implementing them for the first time and not those who have been practicing them previously.

It might be wise to score projects based on the expected GHG reductions of the project, regardless of whether it has been implemented previously.

Thank you for your consideration.

Megan Kemple

From: kmscow@gmail.com [kmscow@gmail.com] on behalf of Kate Scow [kmscow@ucdavis.edu]
Sent: Thursday, February 16, 2017 2:49 AM
To: CDFA OEFI@CDFA
Cc: Scowlab
Subject: Comments on Healthy Soil Initiative

Dear CDFA Staff: Please find here comments from the Kate Scow Soil Microbial Ecology Lab in the Dept of Land, Air and Water Resources, University of California, Davis CA 95616.

Specific Comments on Powerpoint Information Provided on the "Healthy Soils Incentive Program"

SLIDE 7 Framework Proposed for Discussion: Incentives Program - Eligibility:

1. Why does Incentives Program not refer to "increasing soil carbon" or "soil carbon sequestration" in addition to reducing GHG emissions (similar to the first paragraph on Slide 13-Demonstration Programs)?
2. Is there any incentive (e.g. funding level) for adoption for more than one practice?

SLIDE 8 Management Practices Tentatively Included for Incentives:

1. Is there information available on how GHG emissions are affected by these practices?
2. Clarify whether compost addition is a required practice, or is it optional and thus simply one of the options on the list?

SLIDE 10: Frameworks Proposed for Discussion: Incentives Program - Application:

1. Is baseline estimation of GHG emission from a farmer's plot supposed to be conducted in the timeframe between grant solicitation and proposal submission,e.g. one month (Slide 12)?
2. Who is to conduct the "tracking and reporting of net GHG benefits from project activities?" Will it be self-reported by the farmer? If so, what is the plan for verification?
3. Will there be any "ground truth" (field) monitoring or measurements made?
4. What is the status of the "GHG reduction estimate" methodology? Ready to implement?

SLIDE 12: Framework Proposed for Discussion: Incentives Program - Tentative Timeline

1. Slide 12 states that project implementation is to begin by Oct 2017, but Slide 5 states that funds must be encumbered by June 30th 2018. Is this a discrepancy?
2. Slide 12 does not include date that the projects must be finished by, but Slide 5 states that funds must be expended by June 30th 2020. Is there a date by which an incentive project must be finished?

SLIDE 13: Framework Proposed for Discussion: Demonstration Projects:

1. Can you clarify who are the minimal partners required in demonstration projects? The current wording seems unclear as to who the “required” partners are:
2. Do partnerships require an ag operation/industry group to be involved?
3. What is the definition of an “agricultural operation”? Does it only include commercial farms? Or are research farms also possible
4. Are academic partnerships required, or are academics just one of the possible partners?
5. Are the same monitoring procedures going to be used for demonstration and incentive projects?

Need to better differentiate between DEMONSTRATION PROJECTS and INCENTIVE PROGRAMS

- Surprised that the monitoring asked for for the two programs is quite similar even though the Demonstration program is much larger and more extensive than the Incentive program.

Let us know if you need clarification on any of this.
Best, Kate Scow and Scowlab

--
Kate M Scow
Professor of Soil Science and Microbial Ecology (http://scowlab.lawr.ucdavis.edu/)
Director of the Russell Ranch Sustainable Agricultural Facility
(http://asi.ucdavis.edu/rr; http://asi.ucdavis.edu/)
Chair of International Agricultural Development Graduate Group (http://iad.ucdavis.edu/)
Dept. of Land, Air and Water Resources
3236 PES Building, One Shields Ave
University of California, Davis, CA 95616
530-752-4632 530-752-1552 (fax)
kmscow@ucdavis.edu

From: Sonja Brodt [sbbrodt@ucdavis.edu]
Sent: Tuesday, February 28, 2017 7:00 AM
To: CDFA OEFI@CDFA
Subject: comments on Health Soils Incentives Program

Please find below a few comments on the Health Soils Incentives Program framework, as outlined in the powerpoint by Geetika Joshi.

I note that cover crops are included as one of the farm management practices under consideration to be included in the incentives program. Cover crops provide a large array of soil building services and are important for healthy agricultural soils. However, if they are to reduce net greenhouse gas emissions under this program, care must be taken to incentivize the most appropriate cover crop practices. For example, a study by Kallenbach et al. 2010 (Agriculture, Ecosystems, and Environment 137: 251-260), has shown that N2O emissions can increase under nitrogen-fixing cover crops, compared to emissions from fallow ground, under certain irrigation conditions. Non-leguminous cover crops may have a different effect. These details should be researched in the literature and clearly laid out in order to ensure that the desired emissions reductions are in fact achieved.

In addition, combinations of practices may be synergistic and should receive additional incentive, or points in selection of project proposals. For example, utilizing cover crops along with improved fertilizer management practices could reduce GHG emissions to a greater extent than either practice alone, through various processes such as uptake of residual nitrogen in the soil, addition of biologically-fixed nitrogen to the farm nutrient budget, thus reducing the need for synthetically-fixed ammonia fertilizer (which is very costly in terms of CO2 emissions), etc.

Cover crops effect change in soil organic matter and long-term carbon storage over time, and stopping use of cover crops may quickly reverse the gains obtained. How will this consideration for stability over time be built in to the farmer incentives program?

Regarding grassland compost application, I understand from my colleagues that there is concern over the potentially negative effect of compost on the balance of native versus invasive or non-native grassland species. I would like to repeat a suggestion from a colleague that such compost applications should be limited to degraded landscapes, already relatively devoid of native species, until research can provide further insights into the effects on less degraded lands.

Finally, I feel that setting aside funds for the demonstration program is an important component of this framework. However, given that the incentive grants to farmers will be relatively few (around 150), relative to the large numbers of farms and ranches in California, and the number of demonstration projects will also be limited to approximately 12 for the whole state, I would suggest considering whether a demonstration component should be built into the farmer/rancher incentives program as well. For example, farm applicants could opt to become a demonstration site and host a certain number of field days, etc. for some additional compensation (or perhaps some cooperation with outreach and extension entities for further publicizing of the project and its results would be a mandatory part of the incentives grant program).

Thank you for considering my input.

Regards,

Sonja Brodt
Coordinator, Agriculture, Resources, and the Environment
UC Sustainable Agriculture Research and Education Program
Agricultural Sustainability Institute at UC Davis www.asi.ucdavis.edu
1 Shields Ave.
Davis, CA 95616
530-754-8547

From: Kelly Schoonmaker [KSchoonmaker@stopwaste.org]
Sent: Thursday, March 02, 2017 2:45 AM
To: CDFA OEFI@CDFA
Subject: Healthy Soils Initiative framework - comments

Thank you for the opportunity to comment on the framework for CDFA's Healthy Soils Initiative. StopWaste is the Alameda County Waste Management Authority, Source Reduction and Recycling Board, and Energy Council. Our mission is to reduce waste in Alameda County and our boardmembers represent the cities in Alameda County, the County, and two sanitary districts.

StopWaste supports CDFA's efforts to create healthy soils and incentivize the use of compost and mulch on rangelands and croplands. Alameda County has ambitious waste reduction goals for organic materials and has adopted several policies and programs to enable County residents and businesses to achieve high diversion of organic materials, including a landfill ban on plant debris a mandatory commercial recycling and composting ordinance. All cities in Alameda County have required the use of compost on all new civic landscape construction since 2010 and most jurisdictions have also required compost on new private development since 2012.

We have reviewed the framework for the Healthy Soils Initiative provided in the presentation materials from the January 19, 2017, meeting as well as the white paper "Compost Application Rates for California Croplands and Rangelands for a CDFA Healthy Soils Incentive Program" (Healthy Soils White Paper). We strongly support the framework and providing incentives to farmers and ranchers to engage in carbon farming. To assist CDFA in making the Healthy Soils Initiative as successful as possible, we submit the following comments and references (at end of email):

Eligibility: **Include land owners and public agencies as eligible entities.**
In both the incentives and demonstration programs, we recommend including land owners and public agencies as eligible entities. Ranchers often lease grazing land, so engaging the land owner of a given site will be critical to successful long-term management of the property. In addition, public agencies, including cities, counties, water districts, and other special districts own rangelands in California. Public entities may be better positioned to take on upfront costs of carbon farm planning and implementation, where an independent rancher or farmer may not have the resources or time. In addition, public agencies have motivation to become early adopters either to work toward the goals stated in their own climate plans or because carbon farming dovetails with other existing agency goals and activities. Public agencies should also be considered as priority demonstration sites because they serve the public by providing education and can model innovative practices.

Co-benefits
StopWaste recommends that CDFA include the following co-benefits to be given consideration during application review:

- **Diversion of organics from landfill to create quality compost:** StopWaste supports the existing recommendation from the Healthy Soils White Paper to use CDFA-OIM and STA as standards for compost used on rangelands as well as the requirement to use compost from a permitted facility. StopWaste encourages CDFA to amend the framework as follows:

- *require* projects to use compost from facilities participating in the US Composting Council's STA program.
- *give preference to* the use of materials listed by the Organic Materials Review Institute (OMRI) in addition to CDFA-OIM, or non-OMRI/OIM compost made from municipal source-separated food and green waste.
- *prohibit* the use of compost from mixed municipal solid waste (MSW) feedstock, which has been shown to be heavily contaminated with glass and plastic and therefore not compatible with agriculture or grazing operations (Stretton-Maycock and Merrington, 2009).

Prioritizing municipal source-separated organic feedstock supports the goals of both AB 1826 and SB 1383 to divert organics from landfill. This recommendation also supports AB 1045 requiring CDFA and other state agencies to work together to support composting facility development and compost markets to meet the state's organics diversion goals.

- **Improved Water Quality:** Application of compost has been shown to reduce runoff and sediment and improve water quality (Crohn et al., 2013, Faucette et al., 2006, Faucette et al., 2008). During previous workshops, some members of the EFA-SAP have expressed concern over the nutrient migration potential of compost. However, research has shown that compost reduces volume of runoff, traps sediment, and prevents erosion. This research has been supported in practice by CalTrans District 5 where compost has been used for erosion and sediment control during and post construction (Scott Dowlan, personal communication). Compost blankets and berms have been found to be more effective than straw wattles, hydroseeding, and bonded fiber matrix at improving water quality by reducing runoff and erosion, and are commonly used on 2:1 slopes, with evidence of success at 1:1 slopes as well.

Evaluation of compost performance

We appreciate the work and research that has gone into developing the Healthy Soils incentive framework and developing the application rates. For example, CDFA has been very conscientious about referring to California-specific or Mediterranean climate-based studies and acknowledging the diversity of landscapes throughout the state. Similarly, StopWaste encourages CDFA to be equally conscientious about drawing on results of research that studies the use of compost only, rather than developing practices based on studies on the application of manure, biosolids, or synthetic fertilizer. Manure and biosolids are types of feedstocks for compost, as is mentioned in the Healthy Soils White Paper. Feedstocks are inherently unstable; through the composting process, the material becomes stable compost, and is a different material from its feedstock. Therefore, it performs differently when applied to soil, and should be evaluated independently from fertilizer or raw feedstocks.

Thank you again for developing this program and for providing the opportunity to comment. We value the process set up by CDFA and look forward to continuing to work with you to advance the Healthy Soils Initiative. Through developing our own compost programs, our agency has collected a significant amount of research on compost use, and we are happy to share with CDFA for the development of the Healthy Soils Initiative.

Sincerely,

Kelly Schoonmaker, RLA, LEED AP
Program Manager | StopWaste
1537 Webster St. | Oakland, CA 94612
p: (510) 891-6510 | f: (510) 893-2308

References:

California Department of Transportation. (2008). *Roadside Erosion Control and Management Study 3 Year Summary Report 2005-2008.* CTSW-RT-08-067-01-1.

Crohn, D., et al. (2013) Composts as post-fire erosion control treatments and their effect on runoff water quality. *Transactions of the ASABE*, 56(2): 423-435.
Faucette, B. et al. (2006). Vegetation and soil quality effects from hydroseed and compost blankets used for erosion control in construction activities. *Journal of Soil and Water Conservation*, 61(6): 355-362.
L.B. Faucette, K.A. Sefton, A.M. Sadeghi, and R.A. Rowland. (2008). Sediment and phosphorus removal from simulated storm runoff with compost filter socks and silt fence**.** *Journal of Soil and Water Conservation*, 63(4):257-264
Stretton-Maycock, D. and G. Merrington (2009). *The use and application to land of MBT compost –like output – review of current European practice in relation to environmental protection.* Science Report – SC030144/SR3 Environment Agency, Bristol UK.

CONSERVATION PARTNERSHIP
ACRCD • NRCS

ALAMEDA COUNTY RESOURCE CONSERVATION DISTRICT

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February 28, 2017

Secretary Karen Ross
California Department of Food and Agriculture
1220 N Street
Sacramento, CA 95814

Dear Secretary Ross:

We commend CDFA for its continued leadership and thoughtfulness in building its Healthy Soils Program. The undersigned producers and organizations have valued our continued partnership to create an impactful program to support innovations in deploying climate-smart strategies across CA agricultural lands. We have been working for many years on building the essential on-the-ground capacity and projects that have reduced atmospheric greenhouse gases, improved soil health, increased soil carbon and created resilience at the farm and watershed scale – the core goals of the Healthy Soils Program.

We offer the following recommendations for CDFA's latest proposed framework for the Healthy Soils Program. These recommendations are gleaned from our experience working on soil health and on-farm conservation projects, and a set of recent meetings with practitioners across CA. We look forward to continuing to work with CDFA staff on further development and launching of this ground-breaking partnership.

Recommendation #1: The Program should leverage existing healthy soils and farm conservation efforts at the local level.

NRCS Conservation programs must be leveraged to ensure a successful Program; without NRCS technical assistance and financial support (EQIP, etc), Program-funded projects will be difficult to accomplish and unlikely to yield measureable carbon/GHG benefits for State policymakers, including ARB. To that end, the Program should support projects that leverage federal (NRCS), state and local resources, and help create long-term funding streams for projects.

Resource Conservation Districts (RCDs), UC Cooperative Extension, farm advisors and nonprofits working at the local level with producers and land managers are essential in ensuring successful projects that meet GGRF requirements and ultimately make the Program successful. These organizations have long-term working relationships and established trust with producers and local partners; the technical expertise required to effectively plan, execute, and evaluate projects for their climate and soil carbon impacts, and decades of experience in on-the-ground farm conservation and land management. Technical assistance provided by these organizations should be prioritized supported by the Program. In addition, the Program should support activities that build the long-term capacity of local partnerships to scale their efforts.

Lastly, we urge CDFA to make public landowners and leased lands eligible for the Program, including incentives. Public agencies, water districts, and some RCDs own and manage their own farms/ranches and those properties should be eligible for support through the Program.

Recommendations #2: The Program should provide support, through incentives and technical assistance, for the adoption of ALL climate-beneficial NRCS conservation practices, and other climate-beneficial practices supported by research.

Technical assistance is one of the key components of effective farm conservation programs. There are numerous GGRF-funded programs that recognize the importance of technical assistance, including but not limited to SWEEP, and provide direct support for such activities. The Program should provide grants for the provision of technical assistance to enable producers to develop, implement, and measure the soil carbon and GHG benefits of on-farm projects.

CDFA should include ALL NRCS practices included in COMET-Planner for support through Program incentives. This includes agroforestry practices, grazing management, and compost applications to croplands, among many others. In addition, other practices where research supports soil carbon and/or GHG benefits should also be included, such as compost application to grazed grasslands and riparian restoration. We strongly recommend using COMET-Planner as the quantification platform for the Program, including investment in its further refinement to support the diversity of crops, climates and soils in California, as needed.

Recommendation #3: The Program should incentivize and prioritize projects that develop whole-farm conservation plans, including a Conservation Plan or Carbon Plan as defined by NRCS, and projects that include multiple practices and multiple environmental benefits, as appropriate and feasible for a given farm or ranch.

CDFA should encourage a whole-farm perspective in identifying soil-based GHG reduction and sequestration opportunities on farm, and fund multiple practices, as appropriate on each farm, to optimize the benefits of a whole-farm approach. To that end, CDFA should use the whole-farm GHG planning tool, COMET-Planner, to quantify the anticipated benefits of incentivized practices, stacking practices wherever feasible. Incentivized practices that may not be included in COMET-Planner should be supported with research results, including peer-reviewed models as appropriate.

Current carbon farming and climate smart agricultural efforts being led by RCDs, land trusts and producers across CA bring significant resources, expertise, and shovel-ready projects to the Program. In many regions, local partnerships have, or soon will, establish carbon farming programs, with the goal of significant participation of local farms and ranches in a scaled, long-term program (not merely single, one-time projects). The Program, particularly support for Demonstration, should prioritize projects that have the verified potential for significant impact at the regional scale and are part of an effort to scale results, in terms of soil carbon increases, GHG reductions, and producer participation.

Recommendation #4: CDFA should set a funding level cap for Incentives that provides ample support for practice adoption and to maintain those practices for the project term.

The current cap of $25,000 per project application for incentives should be increased to at least $50,000 to allow for the implementation of practices at large enough scale so that the soil carbon/GHG impact and other co-benefits realized encourage producers to maintain and expand those practices. In addition, a

higher cap will allow for the implementation of multiple practices as defined by a whole-farm conservation plan, which will have additional benefits due to the synergistic effect of those practices.

Recommendation #5: CDFA should provide more specific details on the goals and intended outcomes of the Demonstration program, with an emphasis on supporting innovation in producer participation, practice adoption, and scaling adoption, including overcoming current barriers to adoption.

The Demonstration component of the Program should be clear on what it intends to demonstrate. Proposals for demonstration projects should focus on increasing the adoption rates of soil health practices. Any program focused on agricultural land and soil management at its core must address adoption and maintenance of practices. The Program should serve as a laboratory to test barriers and opportunities/strategies to deepen and broaden adoption of practices. We would strongly suggest the following are essential components of a statewide program whose primary goal is to achieve measureable and significant carbon sequestration and GHG reduction and lead to broad adoption of climate-beneficial practices to reach the State's climate goals.

- Demonstrate the ability to achieve measureable and ongoing carbon sequestration and GHG reduction.

- Demonstrate the capacity to scale adoption across diverse regions, farm systems, and sizes of operations, while addressing current barriers to adoption, including the following:

    - Lack of experience with a given practice or set of practices and the on-farm beneficial impacts such practices have for production and other on-farm goals;

    - Lack of technical assistance and support for producers to identify and assess practices, to implement them successfully, and to monitor/evaluate/manage practices over time. This is especially true with respect to carbon and climate-related practices that require longer project duration and measurement and,

    - Lack of sufficient cost supports for practice project development, implementation, and monitoring. While EQIP can provide up to 50% of the cost for practice implementation covered under that USDA-NRCS Program, in many cases the funding gap is too large for a producer to agree to move forward. This is where the Incentives portion of the HSI Program can be most useful.

In addition, Demonstration projects should support a whole farm system approach to climate change mitigation and improving soil health. Eligible entities should include those with a track record of working successfully with agricultural producers on soil health and conservation projects. Projects should include a long-term outreach and education strategy, an estimation of the potential number of stakeholders reached, and a clear methodology for project evaluation. Priority should be given to projects that implement multiple practices on a given farm/ranch and those that will define strategies for scaling up.

Recommendation #6: CDFA should set a carbon sequestration goal for the Program that is commensurate with the preeminent position of California in global agricultural production, education and research.

As a first step, California could sign on to the aspirational Four Per Thousand (4PT) Initiative of the French Ministry of Agriculture. This non-binding Initiative recognizes the essential role of terrestrial carbon sequestration in addressing global climate change, and challenges agriculture globally to engage as a key participant in the solution of this unprecedented global crisis. By positioning itself in the global 4PT context, CA agriculture lends enhanced credence to the soil as a key component of the climate change solution and offers the State a clear path to meet its 2030 and 2050 GHG reduction goals. It also positions California agriculture to reap the production, water, environmental, and economic benefits of carbon rich soils in both the near and long term.

Program Design Questions

Below, we raise questions regarding the Program's design and requirements that we feel are important to clarify as the Program is finalized.

Project Costs: The Program should provide further guidance on the range of project costs eligible for support, including through the Incentives portion of the Program. Of particular importance are costs associated with Program requirements for baseline and project monitoring, permitting and consultation, and the provision of prevailing labor wages.

CEQA: What will the Healthy Soils Program require in terms of CEQA compliance for proposed projects? Will CDFA address CEQA through a programmatic negative declaration?

Project Monitoring: The Program should provide guidance on project monitoring requirements, including the type and duration of monitoring for soil carbon and GHG reductions. Monitoring could greatly increase project costs, depending upon its extent.

Sincerely,

Katherine Boxer
Executive Officer
Alameda County RCD

Carbon Cycle Institute

February 28, 2017

Secretary Karen Ross
California Department of Food and Agriculture
1220 N Street
Sacramento, CA 95814

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Sincerely,

Torri Estrada, Executive Director, Carbon Cycle Institute

Rebecca Burgess, Executive Director, Fibershed

Karen Buhr, Executive Director, California Association of Resource Conservation Districts

Sherman A. Boone, Board Chairman, East Stanislaus RCD

Bob Reid, President and CEO, Tejon Ranch Conservancy

Sopac Mc Carthy Mulholland, President and CEO, Sequoia Riverlands Trust

Chris Coburn, Executive Director. Santa Cruz RCD

Leigh Sharp, Executive Director, Napa RCD

Patricia Hickey, Executive Director, Mendocino RCD

Katherine Boxer, Executive Officer, Alameda RCD

Heather Nichols, Executive Director, Yolo RCD

Nancy Scolari, Executive Director, Marin RCD

Kellyx Nelson, Executive Director, San Mateo RCD

Brittany Jensen, Executive Director, Gold Ridge RCD

Anna Olsen, Executive Director, Cachuma RCD

Kara Heckert, Executive Director, Sonoma RCD

Wendy Millet, Director, Tomkat Ranch Educational Foundation

Jamison Watts, Executive Director, Marin Agricultural Land Trust

Lani & John Estill, Owners, Bare Ranch

Marie Hoff, Owner, Full Circle Wool

Sally Fox, Owner, Vreseis Farm

Arianna and Casey Strozzi, Owners, Casari Ranch

Kelly Dunaj, Owner, Spring Coyote Ranch

Alexis and Gillies Robertson, Owners, Skyelark Ranch

Stephanie Moreno, Executive Director, Guadalupe-Coyote RCD

Elisa Noble, Executive Director, Placer RCD

Susanna Kirchner, Project Manager, Inland Empire RCD

Gabrielle Mann, Owner, Mann Family Farm

Erin Axelrod and Kevin Bayuk, Owners, LIFT Economy

Jim Jensen, Owner, Tomales Sheep Company

Pete Lassotovitch, President, Sierra RCD

Sheryl Landrum, Executive Director, RCD of Greater San Diego County

Jacquelynne Crabb, District Manager, Coastal San Luis RCD

Robby Avilla, President, Valley Farm Alliance

Jean Okuye, President, East Merced RCD

Sandra and Rob Guidi, Owners, Black Rock Ranch

Ellen Farmer, Marketing and Sales Manager, Farm Fuel Inc.

Scott Stone, Owner, Yolo Land & Cattle Co.