CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE (CDFA)
ENVIRONMENTAL FARMING ACT SCIENCE ADVISORY PANEL

December 13, 2022
9 AM to 12 PM

MEETING MINUTES

Panel Member in Attendance

Jeff Dlott, LandScan (Member and Chair, In Attendance)
Vicky Dawley, Tehama RCD (Member and Vice Chair, In Attendance)
Michelle Buffington, Ph.D., CalEPA, California Air Resources Board (Member, In Attendance)
Scott Couch, CalEPA, State Water Resources Control Board, (Member, In Attendance)
Don Cameron, Terranova Ranch (Member, In Attendance)
Leonard Diggs, Pie Ranch (Member, In Attendance)
Amanda Hansen, California Natural Resources Agency (Member, In Attendance)
Judith Redmond, Full Belly Farm (Member, In Attendance)
Greg Norris, USDA NRCS (Subject Matter Expert, In Attendance)

State Agency Staff and Presenters

Virginia Jameson, CDFA
Carolyn Cook, CDFA
Nina Bingham, CDFA
Christine Birdsong, CDFA
Diana Zapata, CARB

AGENDA ITEM 1 – EFA SAP and CDFA Introductions

The public meeting of the Environmental Farming Act Science Advisory Panel was called to order at 9:08 am by Chair Dlott. Staff from CDFA and the Panel members introduced themselves.

AGENDA ITEM 2 – Minutes from Previous Meeting

Chair Dlott proposed the approval of the previous meeting minutes to the next EFA-SAP meeting so the Panel would have a chance to review the minutes. There were no dissenting opinions on this so the approval will be moved to the next EFA-SAP meeting.

AGENDA ITEM 3 – Meet and Greet with Tawny Mata

Chair Dlott introduced Tawny Mata, the new manager of CDFA's Office of Environmental Farming and Innovation.

AGENDA ITEM 4 – Update on Recent OEFI Solicitations

OEFI's lead scientist for the State Water Efficiency and Enhancement Program (SWEEP) Carolyn Cook, provided an update for the Conservation Agriculture Planning Grants Program (CAPGP), including a detailed overview of the review process for CAPGP. She also provided a summary of the Pollinator Habitat

Program (PHP), as well as a summary of outcomes for solicitations for the SWEEP program, for which she is hoping to announce awards in January 2023.

Member Cameron asked if any GSAs had applied for SWEEP grants. Ms. Cook was unsure if any had applied yet, though her team was still going through all the applications.

Ms. Cook provided an overview for public input opportunities, for SWEEP, the Healthy Soils Program Block Grant Pilot, the Climate Smart Agriculture Technical Assistance to support HSP and SWEEP, as well as the Water Efficiency Technical Assistance (WETA). A draft request for grant applications (RGA) for WETA will be posted soon for public comment.

Ms. Cook also provided an overview introduction of a new program, the Organic Transition Pilot and an overview of the upcoming USDA Organic Transition Activities.

Ms. Cook offered considerations for a Draft RGA on the Organic Systems Plans (OSP) granted through the CAPGP. She explained opportunities are currently being explored.

Member Norris asked if Ms. Cook had a general sense of the kind of work being done in the Southern Desert SWEEP Pilot that has been popular. Ms. Cook said more exploration would be needed to get a better understanding of the kind of work being done in that region to facilitate the need for the SWEEP – SDP. Member Norris was curious how much was being requested on average per each application, and if the work is more specific or general improvements. Ms. Cook is hopeful for a more detailed analysis in the next EFA SAP.

Chair Dlott asked for public comment. No comments or questions were received at the time.

AGENDA ITEM 5 – Re-saturation of Delta Peat Soils Through Rice Cultivation

Chair Dlott introduced Nina Bingham, environmental scientist working with HSP, who was joined by Diana Zapata from the California Air Resources Board (CARB). Ms. Bingham presented an overview of new practices in re-saturation of Delta Peat Soils through rice cultivation. Ms. Bingham explained the new practice was proposed in the summer of 2020. The new practice proposal underwent external review from a technical sub-committee from Fall 2020 through Winter 2021. The new practice pathway underwent quantification methodology and practice guidelines development in 2022.

Ms. Bingham provided a refined practice definition – convert land use in the Sacramento-San Joaquin Delta region from annual, non-rice agriculture to rice cultivation to reduce net GHG emissions and stop/slow down land subsidence. A GHG Emissions map model illustrating the reductions of atmospheric GHG and the improvement in soil health through healthy soils practices.

Ms. Bingham then turned over the presentation to Dr. Zapata to illustrate the denitrification and decomposition of soils and soil characteristics. Dr. Zapata also presented DNDC modelling for rice management practices and how flooding and residue retention impacts those practices.

Ms. Bingham noted the data gaps in the modeling and validation. Best management practices need more in-field testing. Payment flat rate per acre is needed. Modeling of those rates can be modelled on USDA NRCS EQIP and CPS to constrain those rates. However, there could be wide variability in potential payment rates.

Ms. Bingham provide a program recommendation proposing to include new practices for the re-saturation of the Sacramento – San Joaquin Delta Soils to fill data gaps.

ACTION ITEM: Incorporation of the practices into Type A Demonstration Projects, requiring measurement of in-field GHG emissions and to conduct analysis on cost/benefits. Member Cameron moved for approval and Redmond seconded the motion to approve the program recommendation proposal. The proposal passed unanimously.

AGENDA ITEM 6 – Regenerative Agriculture Definition

Chair Dlott introduced the topic of regenerative agriculture and subject matter experts Dr. Margaret Smiter-Kopperl from the Lockeford Plant Materials Center USDA Resources Conservation Service, Dr. Cristina Lazcano, associate professor from Soil Biodiversity and Health Lab, UC Davis, Timothy York, CEO of the California Leafy Green Marketing Agreement, and Dr. Daniel Rath, agricultural soil carbon scientist from the Natural Resources Defense Council (NRDC).

Chair Dlott asked Dr. Lazcano how her experience with farmers has gone in terms of applying regenerative agricultural practices and how the outcomes were being measured. Dr. Lazcano explained it's the internal support of agriculture systems and a strong emphasis on soils and soil health as the pillars of the agriculture eco systems. The idea of soil health has a strong emphasis on biora and biodiversity. She explained it put biodiversity at the center of soil health and regenerative agriculture. Nutrient cycling regulated by biora, water and soil biodiversity is critical to regenerative agriculture practices. Dr. Lazcano also pointed there are unknowns as well. What is unknown is that there is scattered evidence of the importance of biora in healthy soil practices, but it is still being analyzed how much is necessary to support biodiversity. Unknowns are related to how these practices are working in various areas that are designed for other environments that are not present in California.

Dr. Rath explained that regenerative agriculture is defined by the different effects depending on where they are, so core principles focus on how regenerative agriculture emphasizes soil health, and biodiversity and that is extremely context-dependent specific conditions in specific areas will really determine the outcomes. It's also about cultural agricultural practices, farmer well-being, relations within the community, human health, and farmer innovation. Many of these practices that were identified to improve soil health were developed outside of the California area, in the US mid-west. Process and outcome is extremely important as is asking questions about the goals and desired outcomes. At its core, the definition is being shaped by the farmers practicing it, due to the fact the practices are emerging practices.

Member Hansen is thinking about scaling nature-based agriculture solutions and a big area of focus on monitoring to get a better understanding of outcomes, but then also supporting people with decision-making tools to better understand the various practices outcomes desired in a specific area. Member Hansen asked if the presenters had any thoughts on whether there were any tools available or being developed to help farmers scale their practices in their regions to get desired outcomes. Dr. Smither-Kopperl feels there is a lack of monitoring or management, and that what is needed is verifiable measurement, since environments can change quickly, especially with the variability already present in multiple regions. Dr. Smither-Kopperl is interested in how these areas are changing over time, and how that can be done without green-washing. This might require independent monitoring, to determine what is working and where. She believes this basic information will be very important. Cover crops don't work

the same everywhere in the state, for example. Ensuring those changes over time is necessary, but it does present difficulty due to the fact the variability is so extreme over such a large geographic space.

Dr. York cited specific examples to corroborate Dr. Smither-Kopperl's statements, emphasizing how important the context of each site is to fully assess all the myriad variables. Nuance and site specificity is important to analyze to fully understand how these practices can impact all of the variability already present across the country. Dr. York addressed the additional challenge that growers don't like changing their practices. Pre-harvest testing will require additional spending to test leafy greens, for example. Pre-harvest testing can be difficult to define since across the industry the variability is already intrinsic to the agricultural practices. Getting growers involved in the process early and helping them understand will be very important.

Dr. Rath explained how farmer perceptions impact the spread of regenerative agriculture practices. There is an explicit exclusion of social metrics, Dr. Rath explained. Ensuring grower buy-in and some outcome metrics for them will be another important factor, in addition to farmer innovation. It can be a lot easier to explain in terms of philosophy than it can be for providing the buy-in if the farmers don't support the philosophy from the outset.

Ms. Lazcano addressed how she is experiencing the buy-in she sees from farmers, but there is a fear of how all of this will be standardized due to the variability. Depending on how samples are collected and processed and where they are sent intrinsically creates variability. How many samples need to be taken to develop a viable standard? A better understanding is still necessary to measure the amount of regenerative soil is necessary for several the desired outcomes scientists and farmers are looking for.

Chair Dlott opened this agenda item for public comment:

1. Member Redmond understands there are community-based, regional outcome definitions and how those will vary. Member Redmond wondered if there was a definition that isn't broad and if the definition is considering the use of herbicides and whether they are being lumped into the definition of regenerative.
2. Member Cameron wondered about the where, what and why of regenerative inputs such as herbicides. Dr. Lazcano did mention the evidence of damage herbicides, so it may not be specifically included in the definition of regenerative agriculture practices. Dr. Lazcano explained there is complexity in tillage practices, I.e., intensity, frequency and the amount of damage being done to the soil. How much impact is tillage having on soil? Looking at the increase or decrease in carbon in the soil could be one indicator. Dr. Rath acknowledged the use of no-till does maintain soil structure, so indicating that the outcomes of soil regeneration need to be considered. Identifying the tools necessary and the desired outcomes of those tools on regenerative agriculture practices will be important in the ongoing discussion.
3. Chair Dlott analyzed the definition of success and how that applies to regenerative agriculture practices.
4. Member Cameron addressed the presence of regenerative certifiers to get their input on the definition.
5. Member Buffington thinks it may be important to highlight the guiding principles and priorities for regenerative agriculture, offering that it is a regenerative practice, and there is some portion of it that is quantifiable, also acknowledging that those practices will vary from region to region. Member Buffington wanted to make sure she had the deliverable correct in terms of what will be

provided as a definition of regenerative agriculture. Chair Dlott believes the principles or values coming from the SAP will be meaningful at some point more as a hope, not necessarily as a mandate. The definition is quite broad at this point, Chair Dlott acknowledged. The job of the SAP is not to provide a definition – that falls to the State Board of Agriculture, Chair Dlott said. Dr. Rath mentioned a data base for the structure of regenerative agriculture practices is needed or some sort of infrastructure and that those are made available to the public. The need for local collaborations should extend to whatever resources to improve the local infrastructure is not only a regenerative approach, but a soil management approach too.

6. Chair Dlott asked Dr. York if a recommendation should be made that the market should pay for this research – this idea of where the market comes in. Dr. York addressed the additional cost that would be incurred by the research, noting that growers are going to ask where the cost is going to go. Dr. York believes that ultimately the grower always will, and it is their responsibility to capture that in the free market.
7. Dr. York addressed the strong paranoia of sharing data from grower to grower. Dr. York acknowledged the presence of a database developed by western growers, but growers are reluctant to use it due to the fact there is a fear that the information will be used against them. The idea that growers are going to share their information related to these practices is going to be a challenge, Dr. York said. The data has been emphasized to be anonymized, but growers continue to be reluctant to share their data in such a database, regardless of whether it's food safety or regenerative agriculture practices.
8. Member Diggs provided his comments on programmatic funding as it applies to regenerative agriculture practices. He feels funding for general research to be measured and verifiable might be important elements to fund. He questioned whether legitimizing these practices for the growers pursuing it would be important, but people are already out there using it, marketing it, and trying to define it. As a result, it would seem like CDFA is trying to catch up with that. He questioned the idea of CDFA getting into this market conversation in any way at this time but being the harbinger of the information that can be shared broadly. If there are farmers already using these practices and knowing that they aren't going to give up these practices freely, it may be important to consider a more regional approach to analyzing information, as opposed to specific information about the growers to give incentive to the growers to uplift the practices of all growers in their region and give credit that way.
9. Dr. Smither-Kopperl believes regional input will be very important as this research continues.
10. Dr. Rathe agrees that there may be difficulties with sharing farmer information. If there is a desire to report regenerative agriculture practices there needs to be an aspect of anonymity, but there needs to be some function of traction to understand what the desired outcome is. The cost of it should be shared by purchases, consumers, and farmers, Dr. Rath believes. Finding a way to share the cost, he believes, will be effective for modeling. Dr. Lazcano noted she has already seen the desire to share information from farmer to farmer.

Chair Dlott requested additional public comment.

AGENDA ITEM 7 – Public Comment

1. Public Member Meaghan Donovan asked as CDFA develops a definition of regenerative agriculture, how is it ensuring that that definition takes into consideration the access to land issue, as to not exclude those communities who have not historically has access to land, thus access to

soil? Dr. Lazcano agreed that the topic does need to be discussed as part of the ongoing discussion. Dr. Rath agreed with Dr. Lazcano and that a lot of the indigenous growers of various regions will need to be considered as it will be extremely useful to hear from those experts. Dr. York came back to the work done at the Stewardship Index. The sooner regional growers can be brought into the definition, the broader and more effective the definition of those standards will be. Dr. Smither-Kopperl brought her expertise and understanding in the UK and how it compared with the way those definitions were developed in California. Dr. Smither-Kopperl acknowledged that many of the indigenous plants grown in California were originally brought there from Mediterranean regions elsewhere. Many of the original indigenous plants grown in California have changed drastically over the years.

2. Member Dawley wondered what was really meant by "regenerative," as it applies to how it is used in the definition of regenerative agriculture. Is the intention to recreate what was already here, or to move forward? Until she understands how it is meant to define regenerative agriculture, she needs to understand if something new is being created or if the intention is to return agriculture practices to what they were like in California long ago. Chair Dlott attempted to answer Member Dawley's question by explaining his understanding of the definition based on his conversations. Chair Dlott noted adding where California's strengths lie in agriculture and centralizing the definition of those strengths. Member Cameron noted his experience having conversations from the past to acknowledge whether growers were certified regenerative and how that was an important aspect of those conversations. Member Diggs added that it is very much about relationship and stewardship and if the SAP gets distracted by the specific components some of that may be lost. If we take a larger role in that responsibility, it's important to maintain that responsibility in the long run. Member Diggs wants to know what the impact will be by defining these practices and how it maintains the responsibility of relationships and stewardship and move in a direction that is meaningful.
3. Public Member Toni Longley asked do you visualize a nexus between conventional agriculture and regenerative practices? Will there be separate definitions for regenerative practices and regenerative agriculture as a whole? Do you see regenerative as being beyond organic in practice and in yield? How will conventional farmers be incentivized to adopt regenerative practices? Chair Dlott acknowledged that these are questions the SAP is working to answer. Dr. Rath, answered there is such a diverse number of practices. Dr. York believes that the practices are being shaped by questions like these.

AGENDA ITEM 8 – Next Meeting

Deputy Secretary Jameson indicated that the next meeting would be held in February. Deputy Secretary Jameson wondered what the appetite for scheduling the 2023 series of EFA SAP meetings would be for the second Thursday of the month, which for February would be Feb. 9. It appeared there was consensus around that schedule.

Chair Dlott introduced the motion to adjourn the meeting. The motion was moved by Member Cameron and seconded by Member Buffington. The Panel members unanimously voted to adjourn. The meeting was adjourned at 11:53 am.

Respectfully submitted by:

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Josh Staab, Public Information Officer, California Department of Food and Agriculture