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

MEETING AGENDA
May 24, 2018

EFA SAP MEMBERSHIP
https://www.cdfa.ca.gov/oefi/efasap/
Jocelyn Bridson, MSc, Rio Farms, Member and Chair
Don Cameron, Terranova Ranch, Member
Vicky Dawley, Tehama RCD, Member
Emily Wimberger, CalEPA, ARB, Member
Scott Couch, CalEPA, State Water Board, Member
Tom Hedt, USDA NRCS, Subject Matter Expert

JEFF DLOTT, PHD, SUREHARVEST, MEMBER
DAVID BUNN, PHD, RESOURCES AGENCY, DOC, MEMBER
JUDITH REDMOND, FULL BELLY FARM, MEMBER
JULIE ALVIS, RESOURCES AGENCY, MEMBER

Chair Bridson

1. Introductions
Chair Bridson

2. Minutes and Panel administrative matters
Chair Bridson

3. Healthy Soils Program
Geetika Joshi, PhD, CDFA
• Update for adding new practices to Quantification Methodologies

4. SWEEP Update
Scott Weeks, CDFA

5. Strategic Planning summary document
Chair Bridson

6. CDFA Climate Smart Agriculture efforts
Jaydeep Bhatia, CDFA
Josh Eddy, CDFA

7. Public Comments
Chair Bridson

8. Next Meeting and location
Chair Bridson

Remote Access
Webinar information
Registration URL: https://attendee.gotowebinar.com/register/2093808080029986305
Webinar ID: 638-051-411
Please note the webinar is on listen-only mode.
For verbal questions and comments, please attend the meeting in person

Presentation materials will be posted at the following link prior to the meeting:
https://www.cdfa.ca.gov/EnvironmentalStewardship/Meetings_Presentations.html

Meeting Agenda
AGENDA ITEM 1 – Introductions

The meeting was called to order at 1:10 PM by the Chair, Mr. Don Cameron. Introductions were made. Present at the meeting were all the members noted above under “Panel Members in Attendance.”

AGENDA ITEM 2 – Minutes from Previous Meeting

Chair Cameron introduced the minutes from the January 18, 2018 meetings. A motion was made by Member Bridson to accept the minutes as presented by CDFA staff and
the motion was seconded by Member Dawley. The motion was moved by all members present and accepted without further changes.

AGENDA ITEM 3 – SWEEP Update

Ms. Cook provided a programmatic update on the State Water Efficiency and Enhancement Program (SWEEP). She noted potential future funding sources. Ms. Cook provided a status update on the Joint Program between CDFA and DWR, noting that the North San Joaquin Irrigation District assessment did not pass in support of the project. Therefore, she noted the project would not move forward. The funds allocated to projects under the DWR-CDFA Joint Program would be re-allocated to SWEEP applications received in 2017 that did not receive funding due to insufficient funds.

Ms. Cook explained the monitoring approaches for SWEEP projects funded in 2015 and 2016, noting the different mechanisms that were used for monitoring, namely, comparing paper utility bills in 2015 and third party remote and digitized monitoring through PowWow Energy in 2016. She introduced the next two speakers from California Energy Commission and PowWow Energy.

Virginia Lew, California Energy Commission
Ms. Lew explained the California Energy Commission’s (CEC) Agriculture-related Energy Efficiency Research. She noted the various policy drivers behind the CEC programs, such as the Electric Program Investment Charge (EPIC) and the Natural Gas Research and Development Program. The 2018 EPIC Investment Plan has a focus on energy and water use efficiency in irrigation technologies. Ms. Lew shared examples of some current projects funded through EPIC, such as the Wexus Energy and Water Management Mobile Software for farmers. The funded projects provide growers with easy-to-use, farm-integrated decision-making assistance technologies to help them maximize their water and energy efficiencies. Ms. Lew facilitated questions and provided responses to member questions.

Olivier Jerphagnon and Kevin Langham, PowWow Energy
Mr. Jerphagnon provided a presentation on water-energy monitoring systems developed by their company funded by the grant received through CEC EPIC. He noted their collaboration with UC Santa Barbara and UC Davis to develop energy and water savings technologies, respectively. He explained how the technology was customized for use in SWEEP verifications. Mr. Langham gave a presentation specifically noting their work on SWEEP. Each SWEEP recipient part of the verification was provided with a SMART meter and showed examples of data created by PowWow, such as well pumping and solar energy use. Mr. Langham showed an example of the data generated for SWEEP verifications, including energy savings, water savings and GHG savings. Mr. Langham and Jerphagnon facilitated questions from the panel members and provided responses.
Address by Secretary Karen Ross
Secretary Ross arrived and welcomed the Panel Members. She noted that Chair Cameron had accepted a new position as President of the State Board of Food and Agriculture and would be stepping down as current Chair of the EFA-SAP. Co-Chair Bridson was appointed as the new Chair of the EFA-SAP. Secretary Ross thanked Chair Cameron for his service and presented him with a Certificate of Appreciation. She welcomed Ms. Bridson in her new role as Chair. She would begin to take on the responsibilities as Chair at the May 24, 2018, meeting.

AGENDA ITEM 4 – Healthy Soils Program (HSP) Update

Chair Cameron introduced Dr. Chen who provided an update to the Science Panel on the Healthy Soils Program (HSP). She discussed the projects selected for funding and distribution of awardees for the HSP Incentives Program and HSP Demonstration Projects. She explained the proposed management practices to be considered for inclusion under the HSP and presented an update on CDFA’s mechanism for evaluation and inclusion of these practices. Dr. Chen also presented an update on the 2017 Healthy Soils Program Second Solicitation, noting the differences from the previous round.

Several questions from the Panel were facilitated by Dr. Chen and CDFA staff. Topics included remaining GHG reductions achieved via various practices, clarifications on the verification process, and clarifications on CDFA’s process for including new practices in future rounds of HSP.

AGENDA ITEM 5 – Strategic Planning on Future Topics

Dr. Gunasekara provided a point-by-point update on Strategic Plan processes that occurred in the last two EFA-SAP meetings, including each major recommendation made by the Science Panel at the October, 2017 and January, 2018 meetings. He noted that a public process will be initiated to solicit stakeholder input on the Strategic Plan if approved by the members with a finalized Plan to be presented at the next meeting.

AGENDA ITEM 6 – Public Comments

Several questions and comments from the public were accommodated by Chair Cameron and CDFA staff. They included clarifying questions for PowWow Energy on increasing sample size for SWEEP verifications for data-based future decisions relating to choosing irrigation technologies, distribution efficiency, and modification of the GHG quantification methodology based on PowWow data findings. Additional public comments related to incomplete application analysis for the HSP, concerns regarding
scheduling of awarded project site verifications, increased technical assistance and consideration of existing programs and plans (e.g. Carbon Farm plans), potentially increasing award amount for both Incentives Program and Demonstration Projects, support for several new practices being evaluated for inclusion in the HSP, including on-farm composting, allowing multi-species (mixing leguminous and non-leguminous) cover crops, integrated cropland ruminant grazing, and one-time compost application; and concerns regarding lack of soil health benefits and potential for ammonia volatilization by nitrification inhibitors, and potential crusting or increased run-off from anaerobic digestate application were expressed. Additional clarification was provided in support of on-farm composting to be allowed for those regions where commercial composting facilities may not be available by members of the public.

AGENDA ITEM 7 – Next Meeting and Location

Dr. Gunasekara stated that the next meeting will be May 24, 2018, in Tehama County. A new co-chair will be selected at the next meeting. Final recommendations for the long-term strategic plan for the Panel will be presented at the next meeting. The meeting was adjourned at 4:02 PM by Chair Cameron

Respectfully submitted by:

_________________________  
Amrith Gunasekara, Ph.D.  

Date
Geetika Joshi, Ph.D.
Senior Environmental Scientist, Office of Environmental Farming & Innovation

Environmental Farming Act – Science Advisory Panel Meeting
May 24, 2018
Red Bluff, CA
Program Updates:
  • 2017 Healthy Soils Program (HSP) Round I
  • 2017 HSP Second Solicitation

New Management Practices under consideration for inclusion under the HSP
2017 SECOND SOLICITATION HSP AWARDED PROJECTS

2017 HSP Awarded Projects

Incentives Program
- 51 projects
- 22 counties
- 8,992 tons CO2e/yr GHG Reduction

- 69 applications requesting $1.99 million
- Total grant amount requested: $1.4 million
- Estimated cost share: $1.62 million

Demonstration Projects
- 22 projects
- 20 counties
- 1,642 tons CO2e/yr GHG Reduction

- 27 applications requesting $4.7 million
- Total grant amount requested: $3.2 million
- Estimated cost share: $2.5 million

Note: Final grant awards subject to change pending CDFA budget evaluations.
2017 SECOND SOLICITATION HSP AWARDED PROJECTS

2017 HSP Second Solicitation Projects Selected for Funding Distribution by County

- Incentives Program
  - 33 projects located in 16 counties
  - 43 applications requesting $1.15 million
  - Total grant amount requested: $918,496
  - Estimated cost share: $706,489
  - 7,470 metric tons CO2e/yr GHG Reduction

- Demonstration Projects
  - 6 projects located in 7 counties
  - 11 applications requesting $957,587
  - Total grant amount requested: $549,429
  - Estimated cost share: $614,497
  - 446.5 tons CO2eq/year GHG Reduction

Note: Final grant awards subject to change pending CDFA budget evaluations.
2017 HSP AWARDED PROJECTS

Number of Awards by Farm Size

- Less than 50 acres: 40%
- 100-249 acres: 20%
- 50-99 acres: 15%

Most Popular Practices

- Compost Application: 4710 acres
- Mulching: 552 acres
- Herbaceous Cover Establishment: 548 acres
- Reduced/No-till: 704 acres
- Cover Crop: 548 acres

Average CA farm size: 329 acres
79% projects on smaller farms (<250 acres)

By Acres of Implementation

- Compost Application: 4710 acres
- Mulching: 552 acres
- Herbaceous Cover Establishment: 548 acres
- Reduced/No-till: 704 acres
- Cover Crop: 548 acres

By Number of Projects

- Woody Cover: 37 projects
- Compost Application: 67 projects
- Cover Crops: 40 projects
- Mulching: 552 acres
- Herbaceous Cover Establishment: 548 acres
- Reduced/No-till: 704 acres
- Cover Crop: 548 acres

Applications Received: 66 + 43 = 109
Selected for Awards: 51 + 33 = 84
New Management Practices for Consideration under the CDFA HSP
I. Nitrogen Management

Under Discussion with CARB and USDA-NRCS:

590: Nutrient Management: Reduce Fertilizer Application Rate by 15%
Managing the amount (rate), source, placement (method of application), and timing of nitrogen fertilizer application to achieve 15% reduction.

• Includes a California implementation in Comet-Planner 2.0.
• Negative GHG reduction (i.e., emissions) in certain counties.
I. Nitrogen Management

Under Discussion with CARB and USDA-NRCS:

590: Nutrient Management: Slow release fertilizers

Improved nitrogen management by use of slow release nitrogen fertilizers. Slow release fertilizers release nutrients into the soil gradually, which results in lower N losses from cropland soils.

• Includes a California implementation in Comet-Planner 2.0.
Nitrogen Management

Not considered for next round:

590 Nutrient Management: Replacing synthetic N fertilizer with soil amendments.

Improved nutrient management by partial substitution of beef feedlot manure, chicken broiler manure, chicken layer manure, other manure, dairy manure, sheep manure, swine manure, compost (various C:N) for synthetic nitrogen fertilizer.

• Includes a California implementation in Comet-Planner 2.0.

• Not included due to challenges in establishing application rates for amendments other than compost. Compost application practice already exists.
I. Nitrogen Management

Not considered for next round:

590 **Nutrient Management: Nitrification Inhibitors.**

Improved nitrogen management planning by use of nitrification inhibitors. Nitrification inhibitors slow the nitrification of ammonia, ammonium-containing, and urea-based fertilizers, which results in lower N losses from cropland soils.

- Includes a California implementation in Comet-Planner 2.0.
- Not included due to stakeholder concerns related to lack of CA-based data.
II. Practices Alredy in Comet-Planner

Under Discussion with CARB and USDA-NRCS:

585 Strip Cropping: Add perennial cover grown in strips with irrigated/non-irrigated annual crops.

Growing planned rotations of row crops, forages, small grains, or fallow in a systematic arrangement of equal width strips across a field.

• Includes a California implementation in Comet-Planner 2.0.
II. Practices
Already in Comet-Planner

Under Discussion with CARB and USDA-NRCS:

512 Forage and Biomass Planting: Conversion of Annual Cropland to Irrigated/Non-Irrigated Grass-Legume Forage/Biomass Crops

Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species suitable for pasture, hay, or biomass production.

• Includes a California implementation in Comet-Planner 2.0.
• Plant species to be planted would be consistent with NRCS California eVegGuide https://www.calflora.org/nrcs/index.html
• Cannot overlap with 550 Range Planting.
II. Practices
Already in Comet-Planner

Under Discussion with CARB and USDA-NRCS:

327 Conservation Cover: Convert Irrigated/Non-irrigated cropland to permanent unfertilized grass/grass legume cover.

Converting conventionally managed, irrigated or non-irrigated, annual cropland to permanent unfertilized grass cover.

• Includes a California implementation in Comet-Planner 2.0.
• Negative GHG reduction (i.e., emissions) in certain counties.
Under Discussion with CARB and USDA-NRCS:

550 Range Planting
Establishment of adapted perennial or self-sustaining vegetation such as grasses, forbs, legumes, shrubs and trees.

• Includes a California implementation in Comet-Planner 2.0.
• Cannot overlap with 512 Forage and Biomass Planting.
II. Practices Already in Comet-Planner

Under Discussion with CARB and USDA-NRCS:

412 Grassed Waterway: Convert Strips of Irrigated/Non-Irrigated Cropland to Permanent Unfertilized Grass/Grass-Legume Cover

A shaped or graded channel that is established with suitable vegetation to carry surface water at a non-erosive velocity to a stable outlet.

• Includes a California implementation in Comet-Planner 2.0.

• Negative GHG reduction (i.e., emissions) in certain counties.
II. Practices
Already in Comet-Planner

Under Discussion with CARB and USDA-NRCS:

311 Alley Cropping
Trees or shrubs are planted in sets of single or multiple rows with agronomic, horticultural crops or forages produced in the alleys between the sets of woody plants that produce additional products.

• Does not include a California implementation in Comet-Planner 2.0.
• Cannot overlap with 379 Multistory Cropping.
II. Practices
Already in Comet-Planner

Under Discussion with CARB and USDA-NRCS:

379 Multistory Cropping
Existing or planted stands of trees or shrubs that are managed as an overstory with an understory of woody and/or non-woody plants that are grown for a variety of products.

• Does not include a California implementation in Comet-Planner 2.0.
• Cannot overlap with 311 Alley Cropping.
II. Practices

Already in Comet-Planner

Under Discussion with CARB and USDA-NRCS; may have additional requirements if included:

**528 Prescribed Grazing: Grazing Management to Improve Irrigated/Non-Irrigated Pasture Condition**

Managing the harvest of vegetation with grazing and/or browsing animals.

- Includes a California implementation in Comet-Planner 2.0.
- A Grazing Management Plan signed by a certified professional range manager would be needed (continued on next slide).
II. Practices Already in Comet-Planner

528 Prescribed Grazing: Grazing Management to Improve Irrigated/Non-Irrigated Pasture Condition

Prescribed grazing plan will include:

- Goals and objectives clearly stated.
- Resource inventory that identifies:
  - Existing resource conditions and concerns.
  - Ecological site or forage suitability group.
  - Opportunities to enhance resource conditions.
  - Location and condition of structural improvements such as fences, water developments, etc., including seasonal availability and quality of watering sites.
- Forage inventory of the expected forage quality, quantity, and species in each management unit(s).
- Forage animal balance developed for the grazing plan that ensures forage produced or available meets forage demand of livestock and/or wildlife.
- Grazing plan developed for livestock that identifies periods of grazing and/or browsing, deferment, rest, and/or other treatment activities for each management unit that accommodates the flexibility needed for adaptive management decisions as supported by the contingency plan and monitoring plan in order to meet goals and objectives.
- Contingency plan developed that details potential problems (i.e., drought, flooding, and insects) and serves as a guide for adaptive management decisions in grazing prescription adjustments in order to mitigate resource and economic effects.
- Monitoring plan developed with appropriate protocols and records that assess whether the grazing strategy is resulting in a movement toward meeting goals and objectives. Short term and long term monitoring may be needed to determine outcomes and support timely adaptive management decisions. Identify the key areas, key plants, or other monitoring indicators that the manager should evaluate in making grazing management decisions.
II. Practices
Already in Comet-Planner

Under Discussion with CARB and USDA-NRCS; may have additional requirements if included:

328 Conservation Cover Crop Rotation: Decrease Fallow Frequency or Add Perennial Crops to Rotations

A planned sequence of crops grown on the same ground over a period of time (i.e. the rotation cycle).

• Includes a California implementation in Comet-Planner 2.0.

• A complete implementation plan or Conservation Plan for 3 years of project duration will be needed.

• Cannot overlap with 340 Cover Crop in the same field.
II. Practices Already in Comet-Planner

Not considered for next round:

**650 Windbreak/Shelterbelt Renovation**

Replacing, releasing and/or removing selected trees and shrubs or rows within an existing windbreak or shelterbelt, adding rows to the windbreak or shelterbelt or removing selected tree and shrub branches.

- Determining damage to existing windbreak/shelterbelt to require renovation is beyond the scope of the HSP and requires a professional arborist or forester to determine.
- For purpose of practice implementation and verification, it is tough to distinguish from 380 Windbreak/Shelterbelt Establishment, an eligible practice.
- Does not include a California implementation in Comet-Planner 2.0.
II. Practices
Already in Comet-Planner

Not considered for next round:

612 Tree/Shrub Establishment
Establishing woody plants by planting seedlings or cuttings, direct seeding, or natural regeneration.

- Includes a California implementation in Comet-Planner 2.0.
- Comet-Planner modeling assumes replacing conventionally managed and fertilized annual cropland with unfertilized, woody plants.
III. Variable Names/Already Included

- **Green Manure**
- **Cover crop and biodiverse planting**

- **Semi-permanent coverage**
- **Alternative Inter-row tillage**

- **Whole Almond Orchard Recycling**

Under discussion with CARB and USDA-NRCS:
IV. Ongoing Considerations

- Not considered for next round of funding:
  - Sub surface drip irrigation (SWEEP).
  - On farm composting facility (317).
- Insufficient published peer-reviewed research literature to demonstrate soil C-sequestration in California:
  - Anaerobic digestate application
  - Vermicompost application
  - Mycorrhizal application
  - Microbial inoculation and compost tea
- Literature review, inter-agency consultation and/or modeling tests in progress:
  - Soil Erosion Control by swale building and mulching
  - Composting and Mulching
  - Livestock Management and Ruminant Grazing
  - One time compost application with higher rate for grazed grasslands
  - Application of on-farm produced compost
  - Integrated Cropland Ruminant Grazing
Thank You

Comments must be submitted to cdfa.oefi@cdfa.ca.gov
SWEEP UPDATE

EFA SCIENTIFIC ADVISORY PANEL
MAY 24, 2018

SCOTT WEEKS
ENVIRONMENTAL SCIENTIST
Prop 68

CALIFORNIA DROUGHT, WATER, PARKS, CLIMATE, COASTAL PROTECTION, AND OUTDOOR ACCESS FOR ALL ACT OF 2018.

- Enrolled September 19, 2017
- Authorizes the issuance of $4 billion in bonds
- Must be approved by the voters on June 5th, 2018

SB 5 (Chapter 11.6. 80147 (b)) Regional Sustainability for Drought and Groundwater, and Water Recycling:

“...funds made available pursuant to this section, up to twenty million dollars ($20,000,000) shall be available for the State Water Efficiency and Enhancement Program administered by the Department of Food and Agriculture.”
PROJECT TYPES

WATER CONSERVATION
• Sensors for Irrigation Scheduling (weather, soil or plant based)
• Micro-Irrigation or Drip Systems

GHG REDUCTIONS
• Fuel Conversion
• Improved Energy Efficiency
• Low Pressure Systems
• Variable Frequency Drives
• Reduced Pumping
REVIEW OF 2017 PROJECTS

REVIEWED APPLICATIONS
206

2017 AWARDED APPLICATIONS
58

2017 DOLLARS AWARDED
$5.1 Million

ACRES IMPACTED
7,135 Acres
$1.84 million was reallocated to new SWEEP projects after the joint award with DWR failed to move forward

- 33 applicants contacted
- 6 projects unable to accept
- 27 new SWEEP projects - In the process of finalizing grants
2017 PART 2 PROJECTS

2017 AWARDED APPLICATIONS
27

2017 DOLLARS AWARDED
$1.8 Million

ACRES IMPACTED
4927

PROJECTED GHG SAVINGS
1,228 MTCO2e per year

PROJECTED WATER SAVINGS
5,041 Acre/Feet per year
MEDIA PROJECTS

- Produce videos that highlight SWEEP
- Highlight large and small farms as well as innovative projects
- 3 videos are finished
- 5 more are scheduled or in production

View current videos at: https://www.cdfa.ca.gov/oefi/sweep/
In 2014, the California Department of Food and Agriculture launched the State Water Efficiency and Enhancement Program (SWEEP).
THANK YOU

Scott Weeks
Environmental Scientist, CDFA
Scott.Weeks@cdfa.ca.gov
“Climate smart agriculture is an integrated approach to achieve GHG reductions while also ensuring food security in the face of climate change.

- Building Soil Health
- Managing Methane
- Improving on farm efficiency
Population Growth

Projected: 9.7 billion people
Needed increase in food production to meet 2050 global population
Decline in agricultural productivity

WHY CSA GLOBALY?

+70%  -3-16%
WHY CSA IN CA?

Growing population

Climate Vulnerability

Global Leadership
WHAT CSA CAN ACHIEVE

#1 Increase Sustainable Productivity

#2 Strengthen farmer resilience

#3 Reduce GHG and increase carbon sequestration

#4 Strengthens food security

#5 Provides Environmental Benefits
WHAT CDFA IS DOING TO SUPPORT CSA

- Incentive Programs
- International Collaboration
- Building resources
OEZI PROGRAM HIGHLIGHTS

702 projects supported
$122M awarded
6.7M metric tons of CO2e prevented
INTERNATIONAL COLLABORATION

- CDFA climate smart delegations have visited 4 countries, (Netherlands, Australia, Israel and Chile)
- Climate-smart webinars
CLIMATE SMART WEBINARS

10 webinars
1500+ worldwide audience
75 panelists

WEBINAR: CHILE & CALIFORNIA
Exploring on-farm climate change adaptation strategies

APRIL 25, 2018 | 9 AM TO 11 AM
Where will you need to go to find today's climate?

The tool can also be used in the reverse—looking at one particular location to identify where similar climates might be in 2030. To illustrate the concept, an analogue of present-day Los Angeles, California shows that the southern parts of United States’ eastern seaboard and France, northern Germany, and the Netherlands might experience Hollywood’s traditionally mild winter months (December to February) by 2030.

For more information, visit www.ccafs.cgiar.org.
FUTURE WORK

• Additional Webinars
• Build out full climate smart agriculture site equipped with CSA practices database
• Interagency Collaboration
• Affiliated event at Global Climate Action Summit
THANK YOU

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