

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



**MEETING AGENDA**

**January 18, 2018**

**EFA SAP MEMBERSHIP**

<https://www.cdfa.ca.gov/oefi/efasap/>

Don Cameron, Terranova Ranch, Member and Chair  
Jocelyn Bridson, MSc, Rio Farms, Member and Co-Chair  
Vicky Dawley, Tehama RCD, Member    Jeff Dlott, PhD, SureHarvest, Member  
Emily Wimberger, CalEPA, ARB, Member    Judith Redmond, Full Belly Farm, Member  
Scott Couch, CalEPA, State Water Board, Member    Julie Alvis, Resources Agency, Member  
David Bunn, PhD, Resources Agency, DOC, Member    Doug Parker, PhD, Subject Matter Expert  
Tom Hedt, USDA NRCS, Subject Matter Expert

**Public Meeting**

**1:00 to 5:00 PM**

**California Farm Bureau Federation  
2300 River Plaza Drive, Harvest Room  
Sacramento, CA 95833**

**REMOTE ACCESS**

Webinar information

Registration URL: <https://attendee.gotowebinar.com/register/3488230713818732033>

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](https://www.cdfa.ca.gov/EnvironmentalStewardship/Meetings_Presentations.html)

**Agenda**

- |  |  |
|--|--|
| 1. Introductions   | Chair Cameron                                |
| 2. Minutes from previous meeting   | Chair Cameron                                |
| 3. Strategic Planning on future topics   | Miriam Volat, UC Davis Facilitation Services |
| 4. DWR Land Use Viewer   | Steven Springhorn, DWR<br>Wyatt Arnold, DWR  |
| 5. Regional Conservation Investment Strategy (RCIS)  | Katie Riley, Environmental Incentives        |
| 6. Healthy Soils Program Update <ul style="list-style-type: none"><li>• Summary of practices for consideration</li></ul> | Guihua Chen, PhD, CDFA OEFI                  |
| 7. SWEEP Update  | Ravneet Behla, PhD, CDFA                     |
| 8. Public Comments   | Chair Cameron                                |
| 9. Next Meeting and location   | Chair Cameron                                |

Amrith (Ami) Gunasekara, PhD, CDFA Liaison to the Science Panel

All meeting facilities are accessible to persons with disabilities. If you require reasonable accommodation as defined by the American with Disabilities Act, or if you have questions regarding this public meeting, please contact Amrith Gunasekara at (916) 654-0433.

More information at: <http://cdfa.ca.gov/Meetings.html> and  
[http://www.cdfa.ca.gov/EnvironmentalStewardship/Meetings\\_Presentations.html](http://www.cdfa.ca.gov/EnvironmentalStewardship/Meetings_Presentations.html)

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

103 Mulford Hall  
University of California Berkeley  
Berkeley, CA 94720

July 20, 2017  
1 PM – 5 PM

**MEETING MINUTES**

**Panel Members in Attendance**

Don Cameron, Terranova Ranch (Chair and Member)  
Vicky Dawley, Tehama RCD (Member)  
Scott Couch, CalEPA, State Water Board (Member)  
Bruce Gwynne (filling in for David Bunn, PhD., Natural Resources Agency (Member))  
Judith Redmond, Full Belly Farm (Member)  
Doug Parker, PhD. (Subject Matter Expert)  
Tom Hedt, USDA NRCS (Subject Matter Expert)

**State Agency Staff and Presenters**

Claire Kremen, PhD. Berkeley Food Institute  
Nina Ichikawa, Berkeley Food Institute  
Whendee Silver, PhD. UC Berkeley  
Ravneet Behla, PhD. CDFA  
Guihua Chen, PhD. CDFA  
Geetika Joshi, PhD. CDFA  
Amrith Gunasekara, PhD. CDFA

**AGENDA ITEM 1 – Introductions**

The meeting was called to order at 1:12 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”. A quorum was established. Retiree Luana Kiger was thanked for her commitment and years of service as a Subject Matter Expert to the Science Panel. New Subject Matter Expert, Tom Hedt, was introduced and welcomed.

**AGENDA ITEM 2 – Minutes from Previous Meeting**

Chair Cameron introduced the minutes from the May 18, 2017 meeting. A motion was made by Mr. Gwynne to accept the minutes as presented by CDFA staff and the motion was seconded by Mr. Couch. The motion was moved by all members present and accepted without further changes.

**AGENDA ITEM 3 – Berkeley Food Institute (BFI) Informational Presentation**

Ms. Ichikawa introduced the Berkeley Food Institute. She gave an overview of their vision and mission, explaining their goals and three themes: good food access, fair and healthy jobs and agroecology. BFI is divided into research, policy, and education and

community engagement. Ms. Ichikawa introduced Dr. Kremen, faculty member at the University and co-director of BFI.

Dr. Kremen explained the increased demand for pollinators and the effects of decreased native pollinator populations on sunflowers. She discussed the costs, benefits, barriers and opportunities of diverse farming. Questions to Dr. Kremen and Ms. Ichikawa were facilitated by the Science Panel members and members of the public. Dr. Kremen encouraged the panel and public to provide feedback into the existing and future research she and BFI are engaged with.

#### AGENDA ITEM 4 – Compost Application on Rangelands Informational Presentation

Dr. Silver introduced the Compost Application on Rangelands research. She gave a short background presentation on her work in reducing carbon dioxide (CO<sub>2</sub>) emissions to mitigate climate change. She discussed how CO<sub>2</sub> emissions are still increasing, which is contributing to climate change. Her research uses grasslands to pull CO<sub>2</sub> out of the atmosphere and increase soil carbon levels. Experiments on composted fields showed an increase in carbon sequestration and crop yield, as well as low methane emissions. She noted that ongoing projects of interest to CDFR include nitrate consumption by compost piles, causing low soil nitrate production, and the long-term impacts of compost application to rangelands. Dr. Silver and her team are currently processing compost samples and will be providing data on the sequestration of carbon when it becomes available. The present research phase ends in December and all of the sites (San Diego, Santa Barbara, Sacramento and Mendocino) show a net carbon sink when compost is applied. She explained the next steps in compost application research and acknowledged the people, agencies, and organizations involved in the research. Questions and comments from Science Panel members and the public were facilitated by Chair Cameron.

#### AGENDA ITEM 5 – OEFI Incentive Programs Updates

##### State Water Efficiency and Enhancement Program (SWEEP) Update

Dr. Gunasekara introduced Dr. Behla from the Office of Environmental Farming and Innovation SWEEP who provided an update and preliminary data analysis trends since 2014. Dr. Behla gave a brief introduction on SWEEP and funds allocated since 2014. He discussed the types of projects that are accepted for SWEEP grants and showed mathematical tables describing applications received and projects awarded. He briefly explained the DWR–CDFR Joint Pilot Project objective, goals and funding. Finally, Dr. Behla presented several graphs showing funding, applications, water savings and environmental impact statistics from 2014-2017. Questions and comments were facilitated by Science Panel members and the public.

##### Healthy Soils Program (HSP) Update

Dr. Gunasekara introduced Dr. Chen and Dr. Joshi who provided an update to the Panel on the Healthy Soils Program. Dr. Chen stated the Healthy Soils Incentives Program did not have any significant changes since the last Science Panel meeting. She explained the eight categories that public comments were placed into. All public comments were summarized and noted.

## AGENDA ITEM 6 – Public Comments

Several questions and comments from the public were heard. They included establishing a standardization of measuring for project outcomes, making expectations for collaboration between farmers and researchers clearer, adding funding for on-farm compost facilities, inquiring about when the next HSP phase will be, collaborating with national or international partners on HSP and SWEEP, and plans for socially disadvantaged farmers, language barriers, and projects on Tribal Lands.

## AGENDA ITEM 7 – Next Meeting and Location

Dr. Gunasekara stated that the next meeting will be October 26, 2017, in Monterey, CA. The meeting was adjourned at 4:19 pm by Chair Cameron.

Respectfully submitted by:

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Amrith Gunasekara, Ph.D.

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Date

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

Cooperative Extension Monterey County  
1432 Abbott Street  
Salinas, CA 93901

October 26, 2017  
1 PM – 5 PM

**MEETING MINUTES**

**Panel Members in Attendance**

Don Cameron, Terranova Ranch (Chair and Member)  
Jocelyn Bridson, MSc, Rio Farms, (Co-Chair and Member)  
Jeff Dlott, PhD, SureHarvest (Member)  
Julie Alvis, Resources Agency (Member)  
Kathryn Lyddan, Department of Conservation (Member)  
Doug Parker, PhD. (Subject Matter Expert)  
Tom Hedt, USDA NRCS (Subject Matter Expert)

**State Agency Staff and Presenters**

Robert Roach, Assistant Agricultural commissioner  
Miriam Volat, UC Davis  
Ravneet Behla, PhD, CDFA  
Scott Weeks, CDFA  
Geetika Joshi, PhD, CDFA  
Carolyn Cook, MSc, CDFA  
Guihua Chen, PhD, CDFA  
Amrith Gunasekara, PhD, CDFA

**AGENDA ITEM 1 – Introductions**

The meeting was called to order at 1:05 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.” Chair Cameron stated that there is a lack of a quorum (majority plus one) and one will be established at the next Science Advisory Panel meeting.

**AGENDA ITEM 2 – Welcome Address**

Mr. Roach welcomed the panel on behalf of the Monterey County Agricultural Commissioner’s Office. He noted the important relationship between the citizens of

California and agriculture, emphasizing agriculture's health and economic benefits. Questions to Mr. Roach were facilitated by Chair Cameron.

#### AGENDA ITEM 3 – Minutes from Previous Meeting

In the absence of a quorum, Chair Cameron stated that the minutes from the previous Science Advisory Panel meeting will be introduced and approved at the next meeting.

#### AGENDA ITEM 4 – SWEEP Update

Dr. Gunasekara introduced Mr. Weeks from the Office of Environmental Farming and Innovation SWEEP who explained the program's background and provided a brief update. He discussed the types of projects that are accepted for SWEEP grants and noted that CDFA has started developing several videos to highlight unique projects. He explained that SWEEP audited 18% of the funded projects in 2015 and both greenhouse gas and water savings were higher than initially estimated.

Mr. Weeks introduced Dr. Behla who presented preliminary data analysis trends since SWEEP was introduced in 2014. He showed analytical data describing distribution of projects by crop category and farm size, as well as average greenhouse gas reduction and water savings per SWEEP allocation. Questions from the Science Panel were entertained by CDFA staff.

Dr. Behla introduced Ms. Cook who provided an update on the DWR-CDFA Joint Pilot Project. She discussed funding allocation, program goals and project selections. She informed the Science Panel that DWR and CDFA had awarded the Water Use Efficiency Grant to the North San Joaquin Water Conservation District. The funds will be used to install a pressurized water delivery system, turnouts, Integrated Water Management systems and drip irrigation at 19 agricultural operations in the San Joaquin Valley.

#### AGENDA ITEM 5 – Healthy Soils Program Update

Chair Cameron introduced Dr. Chen who provided an update to the Science Panel on the Healthy Soils Program. She explained the tentative timeline and application distribution for the HSP Incentives Program and HSP Demonstration Projects. She announced there will be a solicitation for proposals on new HSP management practices in November 2017 that will be listed on the website in March 2018. She noted that a potential revision might be needed for current HSP program requirements. Finally, Dr. Chen explained the potential of additional funding through a Parks Bond and how it will be used to improve agricultural and open-space soil health, carbon soil sequestration, erosion control, water quality and water retention. Questions from Science Panel members were facilitated by CDFA staff.

## AGENDA ITEM 6 – Strategic Planning on Future Topics

Dr. Gunasekara introduced Ms. Volat to discuss strategic planning for future topics to be adopted by the Science Panel. A presentation on several potential topics were presented by Dr. Gunasekara to inform the Science Panel on current topics of interest by the Department and the agricultural sector.

Science Panel members concluded that they should focus on the following topics for 2018 followed by additional discussion and public input at the next meeting: native plant and species conservation on working lands, ecosystem services and co-benefits of agricultural lands, state-wide inventory of working lands that can contribute to groundwater recharge, demonstration projects, new technologies and food waste.

Ms. Volat recommended the Science Panel revisit and confirm the topics at the next meeting and solicit additional public comments on a written document that she would compile. Dr. Gunasekara thanked Ms. Volat and the Panel for participating in the discussion.

## AGENDA ITEM 7 – Public Comments

Several questions and comments from the public were accommodated by Chair Cameron. They included plans for implementing innovative practices while dealing with agricultural regulations, incorporating social science into decision making, funding for future rounds of SWEEP and increasing resiliency through effective agricultural adaptation strategies.

## AGENDA ITEM 8 – Next Meeting and Location

Dr. Gunasekara stated that the next meeting will be January 18, 2018. A location was not confirmed. The meeting was adjourned at 4:52 PM by Chair Cameron.

Respectfully submitted by:

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Amrith Gunasekara, Ph.D.

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Date

# Environmental Farming Act Science Advisory Panel California Department of Food and Agriculture

## DRAFT FUTURE TOPICS / 2018 FOCUS

Developed at October 26<sup>th</sup> Panel Meeting

### OVER-ARCHING FOCUS FOR 2018:

What does CA AG need next for Climate adaptation and resilience?

- Adaptation incentives through planning and incentives.
- What are the best adaptation approaches for agriculture?
- How will adaptation incentives play out – Can the panel inform this?
- What is most urgent?

### LENS/INQUIRY TO BRING TO EACH TOPIC:

- *How can we increase recognition and reward for Climate Mitigation efforts?* How can recognition for being a leader in Climate Adaptation, (from large buyers and brands (especially Europe and Asia), increase marketability? CA products are clearly differentiated internationally v. the rest of the Nation.
- *How do we bring innovation to fruition by bringing balance to discordant and complimentary regulations?* Ag regulatory processes are hard to manage – they must overcome property boundaries to act collectively (e.g. WQ and GW recharge are complementarity, but regulated discordantly).
- *Which models bring us more equity in the food and agriculture system?* Is there equity? How do we achieve?
- *Social Science: What will truly drive behavioral change?* (i.e. demonstration or incentives)

### 2018 TOPICS IN TENTATIVE ORDER OF PRIORITY:

- I. Native Plant and Species Conservation on Working Lands
  - Because SGMA land can be fallowed – an opportunity is created to work on wildlife habitat and pollinator plant conservation through incentives and community benefits.
  - There is opportunity to partner with non-profit organizations for raising money for projects.
  - Planning ahead for fallowed land should be a priority - Explore permanent and temporary measures
  - Timing is good for this with SB5 – conservation and parks programs may develop after money comes in from bill – now is a good time to plan ahead (including urban, rural, parks).
  - Qualitative and quantitative methods for measuring multiple benefits need to be employed (e.g. GHG, sequestration, maintain soil C stocks, water quality)
- II. Eco-system Services and Co-benefits of Ag Lands
  - Define ‘Eco-system Services’ and ‘Co-benefits’ for CA AG
  - Utilize and go into more depth on current research (pollinators, hedgerows, habitats e.g. Hydrologic cycle). There are quantifications and opportunities to understand beyond C-sequestration.
  - How can CDFA help share existing data? – can CDFA help share data/resources and their implications for a cropping system; Can CDFA be a resource for quantification (e.g. X acres of a crop – what are its benefits eg GHG, pollinator habitat)
  - Identify remaining data needs to achieve outcomes and determine next steps and deliverable based on previous work
  - Share knowledge from previous work in a format useful to the counties (previously initiated work can be re-visited and framed to show desirable outcomes). This is what is needed by Ag Commissioners.



### III. State-wide Inventory of working lands that can contribute to GW recharge

- Conduct a GIS Project to highlight:
  - Working lands near rivers
  - Crops that can withstand changes
    - 1. ID locations with potential
    - 2. Do targeted outreach
  - Collect documents and data that is already out there showing opportunities?
  - Disseminate data to convince growers that their land is key for recharge
  - Incentivize recharge.
  - Can CDFA assist and outreach and play a policy and legal advising role?
  - Ties into SGMA and ILRP and SWEEP – address the specific opportunities that can play into recharge and nutrient density
  - Explore how the different programs complement working lands:
    - Show the 4 tiers: 1. Quantity, 2. Quality 3. Surface, 4. Ground

### IV. Demonstration Projects

- What are the existing demonstration projects?
- What is a long-term mechanism for trials and testing (demo) through existing agricultural organizations and networks? How do we be more thoughtful with the suite of demonstration projects?
- How to do outreach through the panel on key outcomes/learnings from demonstration projects?
- How do we ensure Post-analysis? i.e. Quantitative and Qualitative follow up to demo projects – did they drive change or did incentives?
- How do we use analysis to drive future decisions?

### V. New Technologies

- Leverage panel to ID areas to incentivize private research
- Explore how to incentivize/guard listed technologies that tie into climate change mitigation and resilience (e.g. N-sensors).
- Understand impact of labor issues/availability on incentives for new technologies (sensors/imagery etc. Labor availability is an important driver; reduced labor is a pressure for automation.

### VI. Food Waste – GHG emissions

- Explore existing state-wide programs for reducing or composting on-farm
- Is there a need for increased incentives?
- Are there potential un-intended negative impacts?

### **NEXT STEPS:**

1. Revisit and Confirm Topics at January Science Panel Meeting
2. Create Calendar for working through topics.



## Launch of the California DWR Land Use Viewer

As part of DWR's ongoing commitment to provide technical assistance to Groundwater Sustainability Agencies (GSAs) and other water managers throughout the state, DWR has developed the **California Land Use Viewer** (<https://gis.water.ca.gov/app/CADWRLandUseViewer>). The Land Use Viewer allows GSAs and the public to easily access both statewide (as recent as 2014 crop data) and existing county land use datasets that have been collected over the last 30 years. The Viewer also includes a variety of tools that will allow users to download and analyze land use data.

### Background

DWR began surveying land use in the early 1950's for specific projects and by the mid 1960's began an ongoing program to perform yearly land use surveys to collect urban, agricultural, and environmental land use and water use data that serve as the basis for estimating current and projected water uses on a statewide and regional scale. Since 1950 DWR has conducted over 250 land use surveys of all or parts of California's 58 counties.

### Benefits to GSAs and other Water Managers

Currently, regional and statewide land use information is publicly available; however, this information is collected and disseminated by a variety of state and local agencies and private companies.

The Land Use Viewer provides consistent, centralized land use data that will improve coordination across the State and help GSAs meet the requirements of SGMA and the Groundwater Sustainability Plan (GSP) regulations.



California DWR Land Use Viewer

<https://gis.water.ca.gov/app/CADWRLandUseViewer/>

## Benefits of the Land Use Viewer

- **Standardized, Statewide Coverage:** The Land Use Viewer provides access to a standardized, single year, statewide dataset as well as historical county land use data collected at various time periods over the last 30 years.
- **Supports GSP Development:** The Land Use Viewer integrates data from DWR into a common, well organized, and accessible format that will benefit GSAs as they develop their GSPs including requirements to provide descriptions of existing land use designations and quantifying the historical, current, and projected water budget for groundwater basins.
- **Reduced Cost to GSAs and Land Owners:** Easily accessible statewide land use data provided by DWR will save GSAs time and money, which in turn will reduce costs to land owners and other groundwater users in the basins.
- **Provides Appropriate Data Access:** The Land Use Viewer displays the type of crop that was grown in previous years (i.e. 2014), and does not display water use, fertilizer application, or other related agricultural data, which protects private information as required by law.

## How DWR will use this Data

For many years, DWR has collected land use data throughout the State and uses this information to develop water use estimates for statewide and regional planning efforts, including water use projections, water use efficiency evaluation, groundwater model development, and water transfers. With the passage of SGMA, DWR will use the existing county and newly developed statewide land use information to review GSPs and enhance DWR's groundwater models that will be made available for GSAs to use, if they choose, for GSP development.

### Contact and Additional Information

- For more information or questions on **DWR's Land Use Viewer**, please contact Wyatt Arnold at [Wyatt.Arnold@water.ca.gov](mailto:Wyatt.Arnold@water.ca.gov)
- For more information or questions on **DWR's Land Use Program**, please contact Simon Eching at [Simon.Eching@water.ca.gov](mailto:Simon.Eching@water.ca.gov) or visit <http://www.water.ca.gov/landwateruse/>
- For more information or questions on **DWR's technical assistance**, please contact Steven Springhorn at [Steven.Springhorn@water.ca.gov](mailto:Steven.Springhorn@water.ca.gov), or visit [http://water.ca.gov/groundwater/sgm/data\\_tools\\_reports.cfm](http://water.ca.gov/groundwater/sgm/data_tools_reports.cfm) for additional information on DWR's SGMA related Data, Tools, and Reports.



California Department of Water Resources  
1416 Ninth Street  
P.O. Box 942836  
Sacramento, CA 94236-0001

<http://www.water.ca.gov>



# HEALTHY SOILS PROGRAM UPDATE

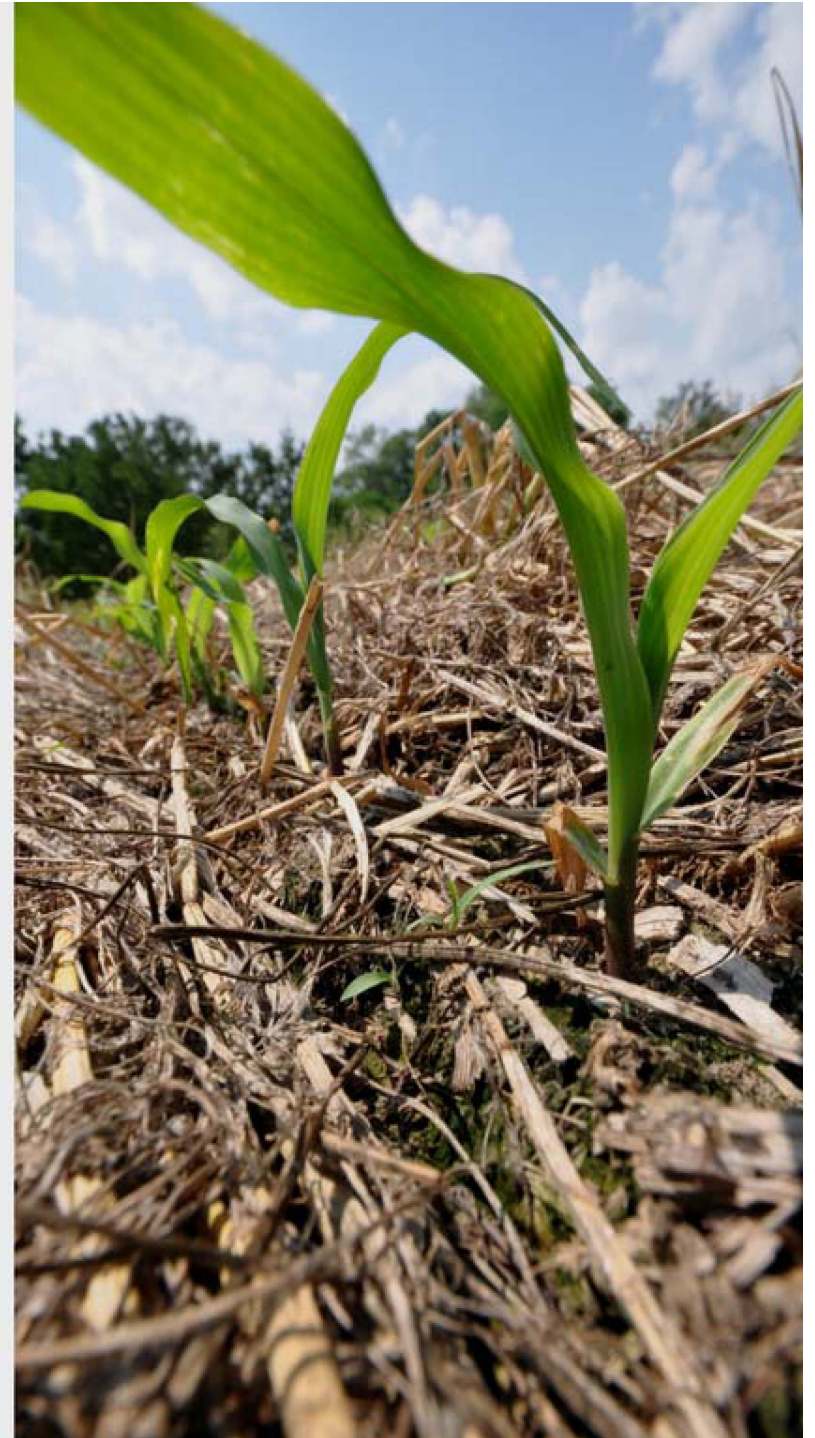
ENVIRONMENTAL FARMING ACT – SCIENCE ADVISORY PANEL  
JANUARY 18, 2018 | SACRAMENTO, CA



Guihua Chen, Ph.D.  
Senior Environmental Scientist  
Office of Environmental Farming and Innovation

## OUTLINE

- 2017 Healthy Soils Program (HSP) Projects Selected for Funding
  - Incentives Program: 63 projects
  - Demonstration Projects: 22 projects
- Update: Proposals for new practices to be considered for inclusion under the HSP



## 2017 HSP INCENTIVES PROGRAM AWARDED PROJECTS BY COUNTY

County	#	Acreage	County	#	Acreage
Colusa	3	346	San Luis Obispo	5	300
Del Norte	1	185	San Mateo	1	49
Fresno	2	286	Santa Barbara	3	74
Inyo	1	145	Santa Cruz	2	90
Lake	2	44	Siskiyou	1	14
Los Angeles	1	9	Solano	2	111
Marin	4	286	Sonoma	6	95
Merced	9.5	1008	Stanislaus	2.5	91
Monterey	1	12	Tehama	2	3
Napa	2	81	Tulare	2	326
Riverside	3	79	Tuolumne	1	15
San Diego	2	44	Ventura	1	22
San Joaquin	1	96	Yolo	2	13

# 63

projects

# \$1.77

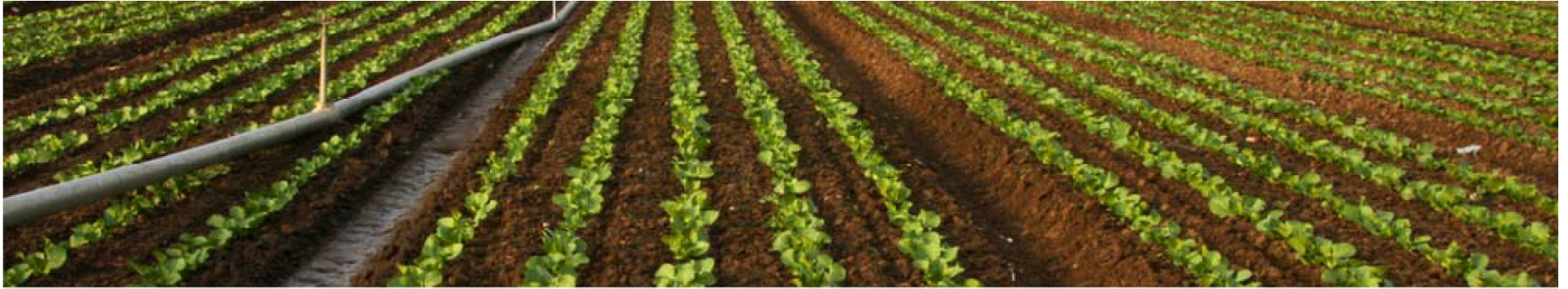
million in grants  
awarded

# 3,821

acres covered

# 26

counties



## 2017 HSP DEMONSTRATION PROJECTS AWARD UPDATE

<b>Category</b>	<b>#</b>	<b>Requested Funds (Million)</b>	<b>Total Matching Funds (Million)</b>
Awarded Projects	22	\$ 3.21	\$ 2.49
	Type A 9	\$ 2.19	\$ 1.55
	Type B 13	\$ 1.02	\$ 0.94

26

counties have Incentives projects

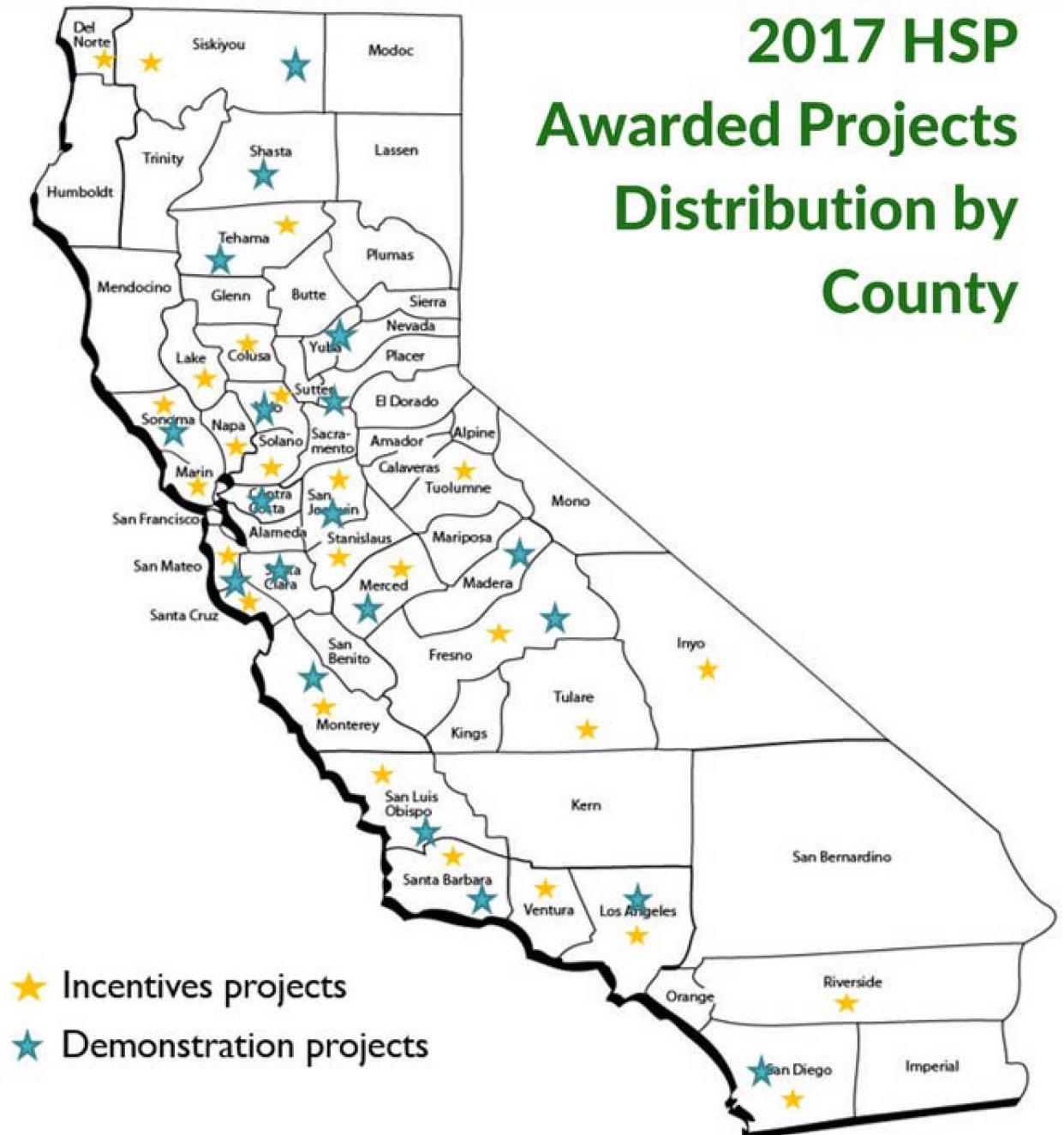
20

counties have Demo. projects

16

counties have both

## 2017 HSP Awarded Projects Distribution by County





## 2017 HSP INCENTIVES PROGRAM TECHNICAL ASSISTANCE WORKSHOPS

County	#	County	#
Colusa/Sutter	3	Sacramento	1
Del Norte	1	Santa Barbara	2
Fresno	1*	Santa Clara	1
Glenn	2+1	San Luis Obispo	2
Butte	1	Santa Cruz	2
Lassen	1	San Diego	5
Mendocino	1	Shasta	1
Napa	1	Tehama	2
Santa Rosa	1	Ventura	2+1

\* Workshops provided by CDFA

32

workshops in 19  
counties

295

in-person attendees

101

remote attendees

149

received additional  
assistance from  
technical assistance  
providers

## OUTLINE

- 2017 Healthy Soils Program (HSP) Projects Selected for Funding
  - Incentives Program: 63 projects
  - Demonstration Projects: 22 projects
- **Update: Proposals for new practices to be considered for inclusion under the HSP**
  - CDFA accepted proposals during Nov. 6 – Dec. 18, 2017
  - 11 proposals received



# PROPOSED MANAGEMENT PRACTICES

## *Cropland Management Practices*

- Nutrient Management
  - 15% reduction in N rate paired with at least one other HSP practice
  - Replacing synthetic N fertilizer with soil amendments
  - Nutrient Management with soil solution sampling
  - *Slow or controlled release fertilizers*
  - *Nitrification inhibitors*
  - *15% Reduction in N application rate*
- Anaerobic Digestate Application
- Vermicompost Application
- Mycorrhizal application
- Microbial Inoculation and Cultivation with Compost Tea
- Conservation Crop Rotation (CPS 328)
- Cover cropping and Bio-diverse Planting



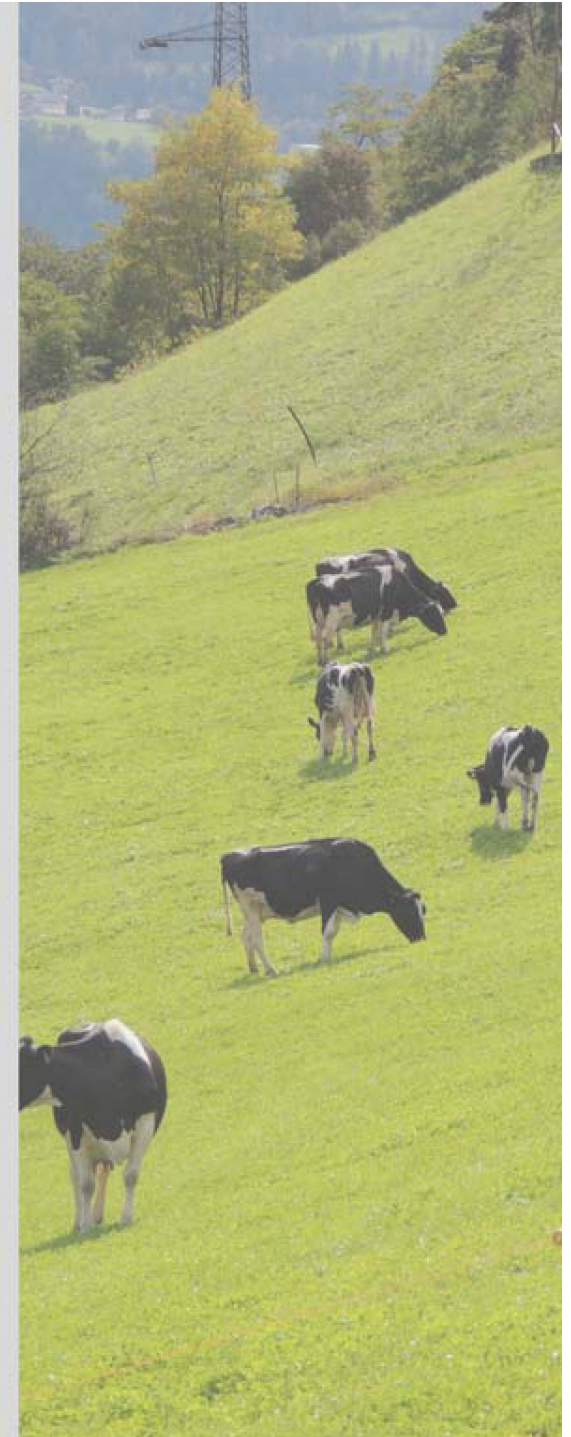
# PROPOSED MANAGEMENT PRACTICES

## *Cropland Management Practices*

- Green manure
- Strip Cropping (CPS 585)
- Semi-Permanent Coverage
- Alternative Inter-Row Tillage
- Integrated Cropland Ruminant Grazing
- Whole Almond Orchard Recycling
- Soil Erosion Control by Swale Building and Mulching
- Composting and Mulching

## *Grassland / Rangeland Management Practices*

- Prescribed Grazing (CPS 528)
- Livestock Management & Rotational Grazing
- One-Time Compost Application with Higher Rate for
- Grazed Grasslands
- Range Planting



# PROPOSED MANAGEMENT PRACTICES

## *Cropland to Herbaceous Cover Practices*

- Conservation Cover (VCPS 327)
- Forage and Biomass Planting (CPS 512)
- Grassed Waterway (CPS 412)

## *Establishment of Woody Cover Practices*

- Alley Cropping (CPS 311)
- Windbreak/Shelterbelt Renovation (CPS 650)
- Tree/Shrub Establishment (CPS 379)

## *Others*

- On-Farm Composting Facility (CPS 317)
- Sub-Surface Drip Irrigation



# PROGRAM CONTACTS

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Healthy Soils Program  
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Senior Environmental Scientist  
Supervisor – Incentive Programs  
[Geetika.Joshi@cdfa.ca.gov](mailto:Geetika.Joshi@cdfa.ca.gov)

Amrith Gunasekara, Ph.D.  
Science Advisor to Cdfa Secretary  
Manager, Office of Environmental  
Farming and Innovation  
[Amrith.Gunasekara@cdfa.ca.gov](mailto:Amrith.Gunasekara@cdfa.ca.gov)



# SWEEP UPDATE

EFA SCIENTIFIC ADVISORY PANEL

January 18, 2018

Ravneet Behla

Environmental Scientist, CDFA



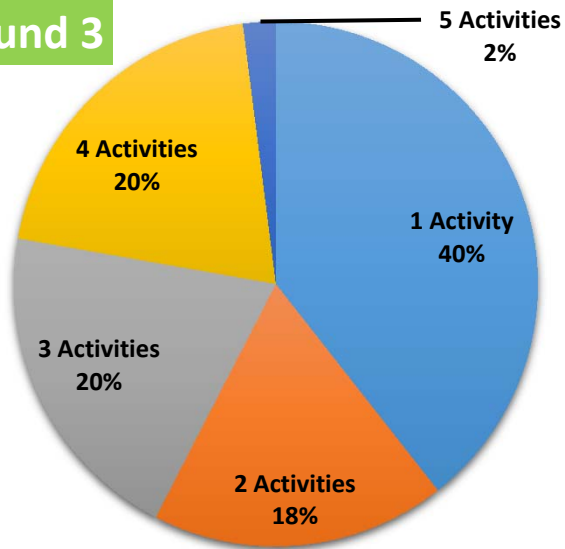
# Project Categories

#	Category	Examples	Target Savings
1	Irrigation System	Improvements in irrigation systems (e.g., installation of drip, lined reservoir, replaced leaky pipes, etc.)	Water
2	Irrigation Monitoring	Installation of flow meters, soil moisture sensors, weather station, etc.	Water
3	Variable Frequency Drive	Installation of VFD	GHG
4	Pump Improvements	Retrofitting or replacement of a pump, pump conversion (diesel to electric or diesel to natural gas)	GHG
5	Renewable Energy	Installation of solar or wind power	GHG

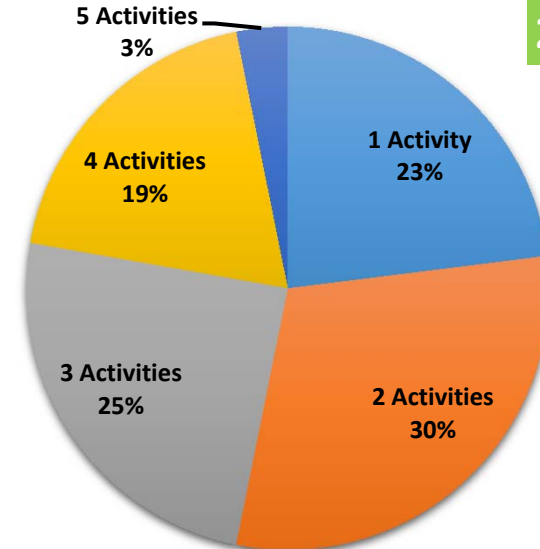


# Project Activities in Last Four Rounds

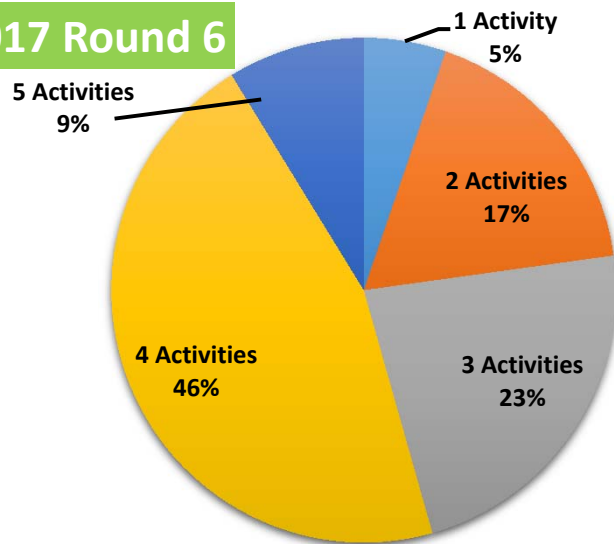
2015 Round 3



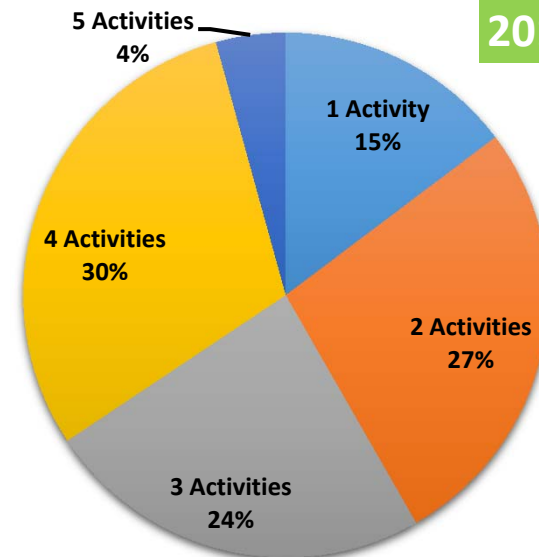
2016 Round 4



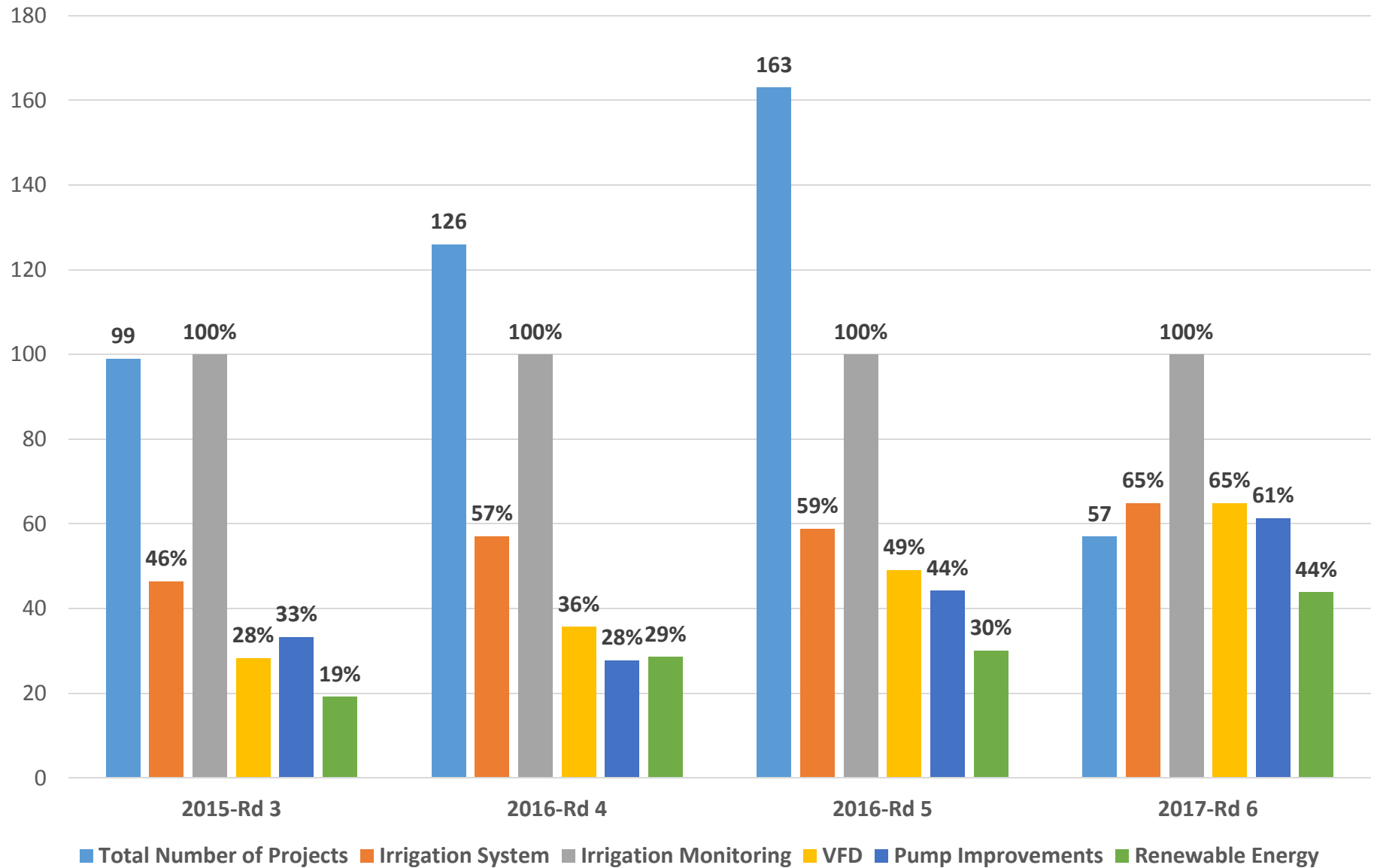
2017 Round 6



2016 Round 5



# Project Activities in Last Four Rounds



Total Available (Cap) \$10 M (\$150K)

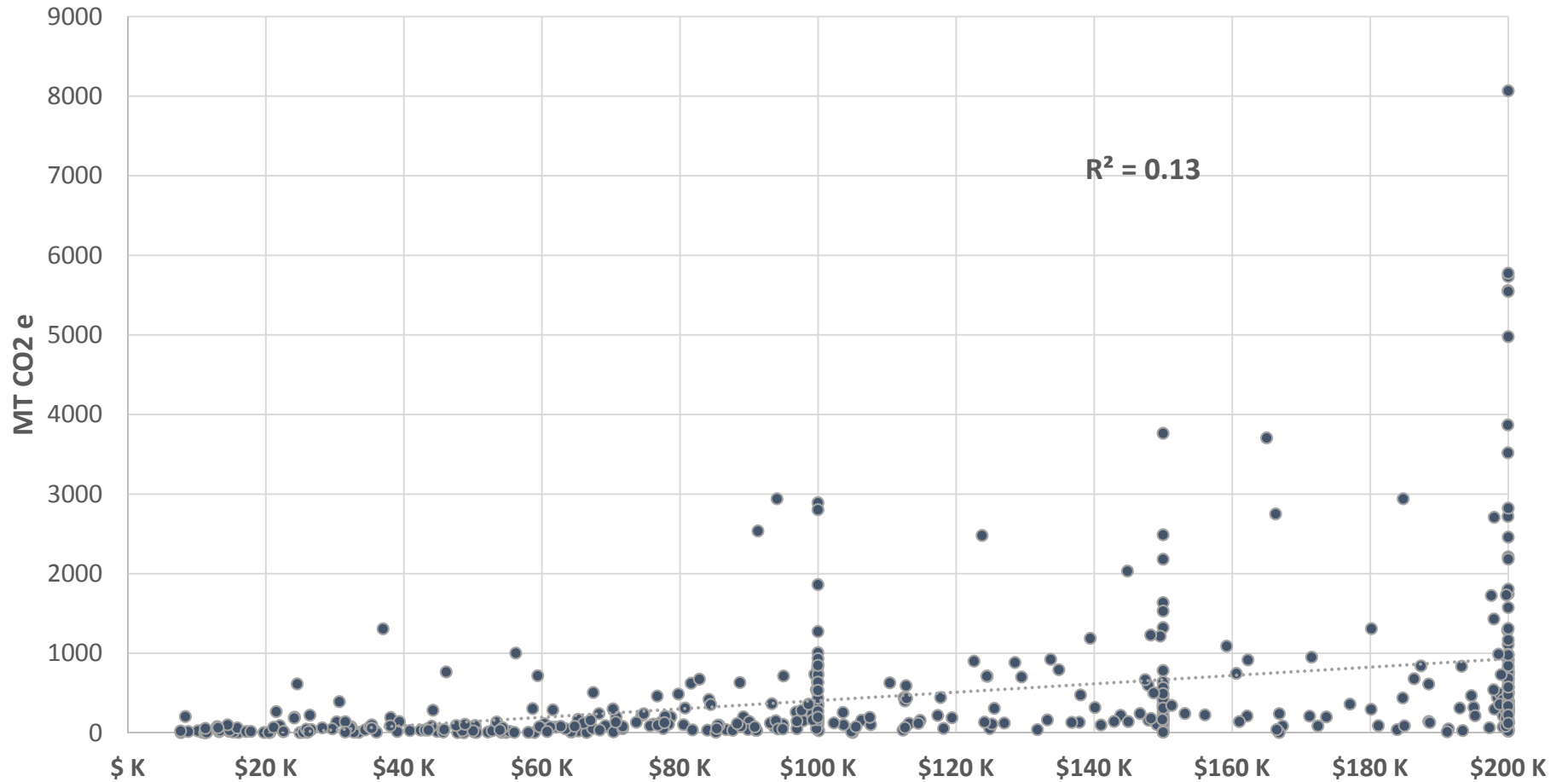
\$16 M (\$200K)

\$22 M (\$200K)

\$7.5 M (\$100K)

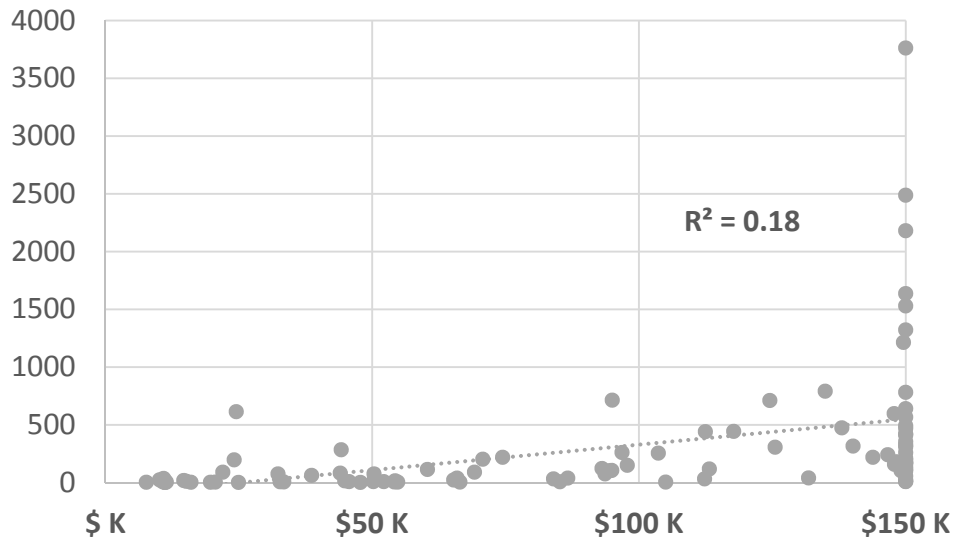
# GHG Reduction vs. \$ Requested in Last Four Rounds

GHG Reduction (MT CO2 e) for Project Life

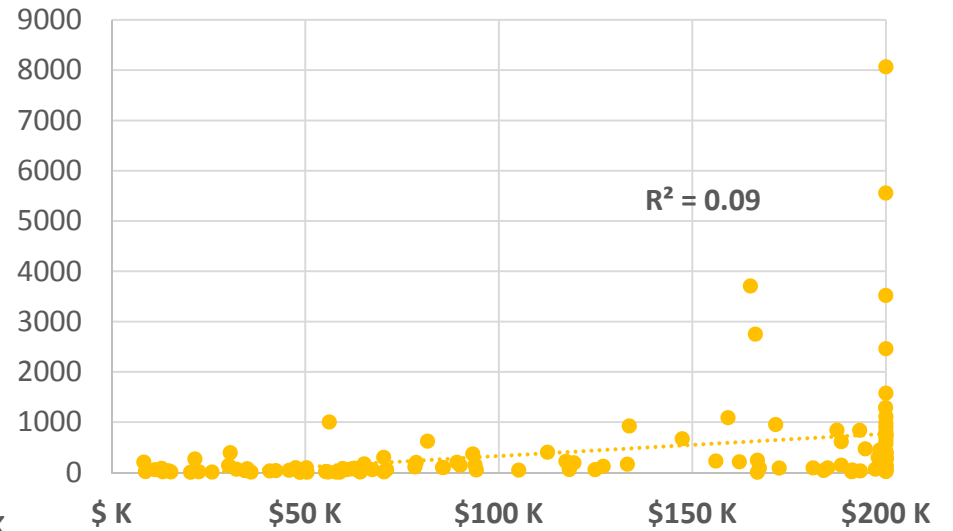


# GHG Reduction (MTCO2 e) Vs \$ Requested in Last Four Rounds

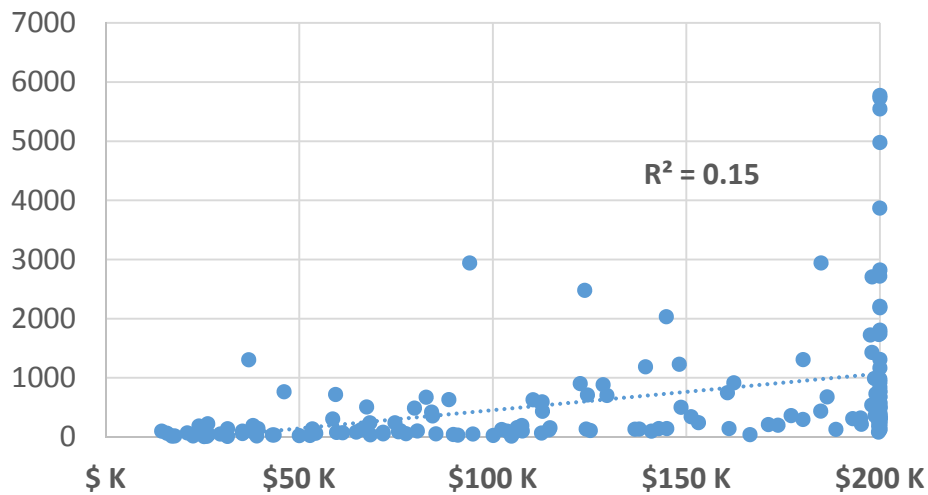
### 2015 Rd 3



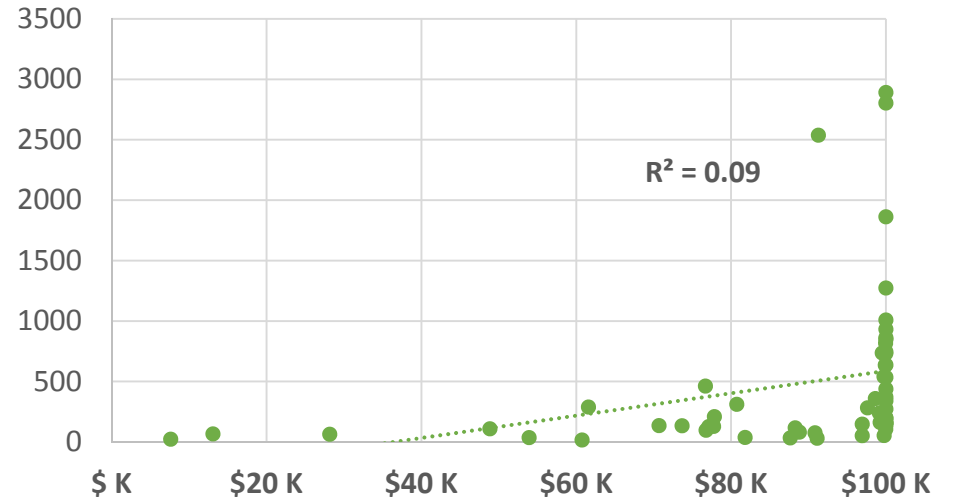
### 2016 Rd 4



### 2016 Rd 5

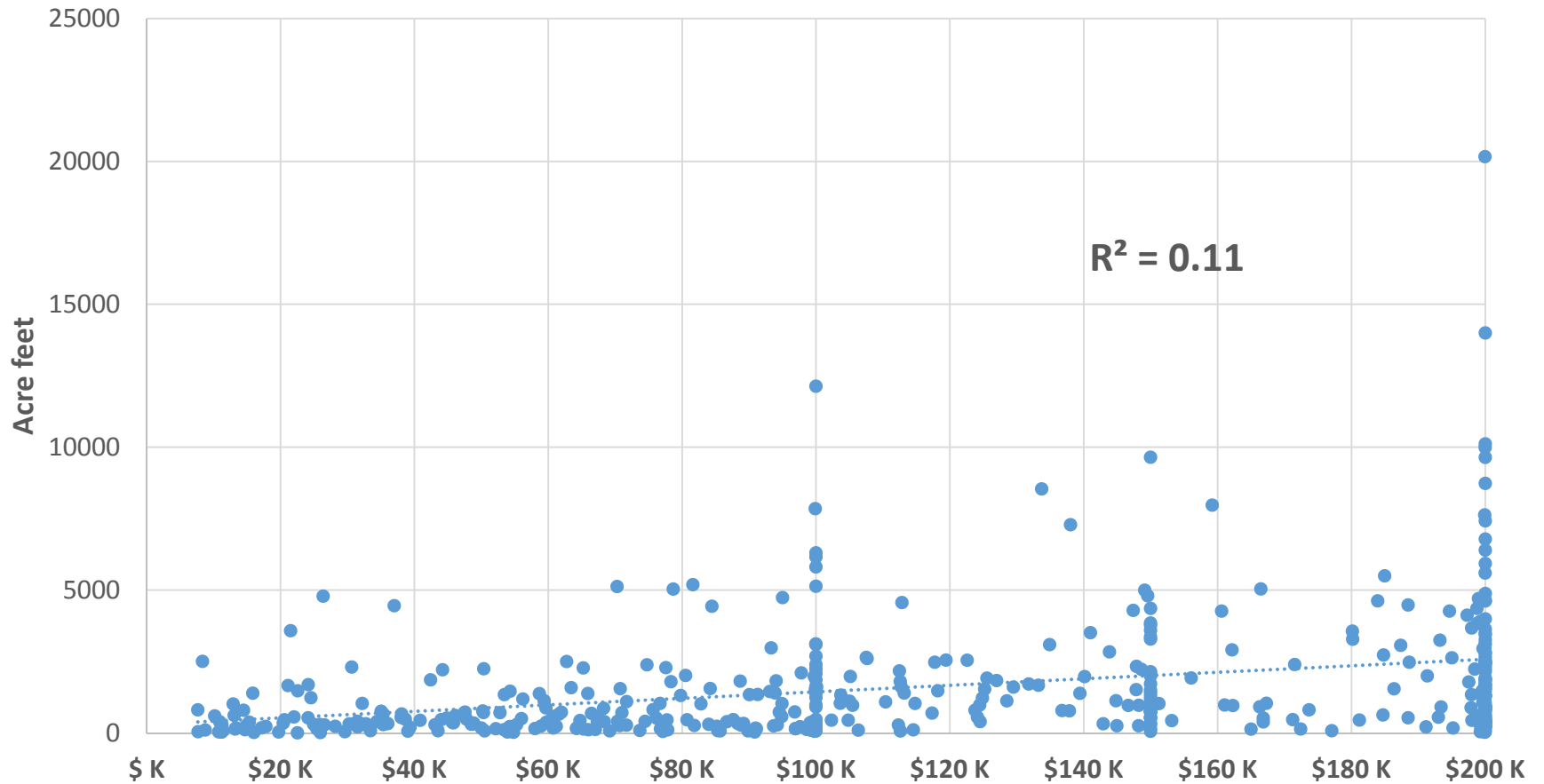


### 2017 Rd 6



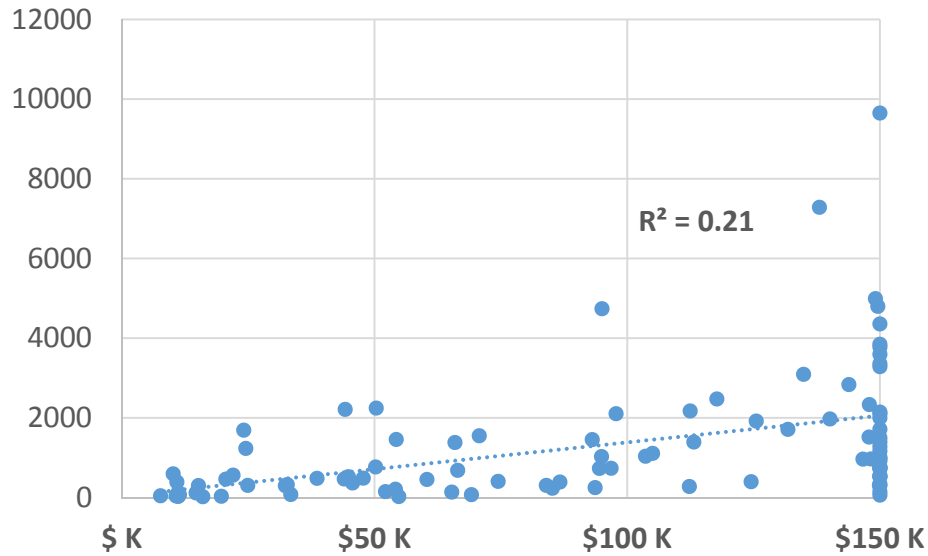
# Water Savings vs. \$ Requested in Last Four Rounds

Water savings (Acre feet) for Project Life

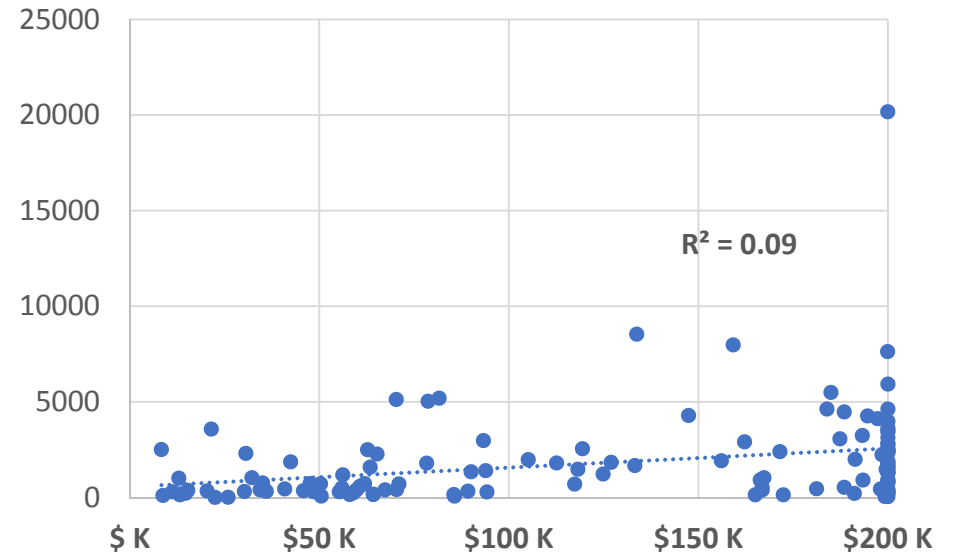


# Water savings (Acre feet) vs. \$ Requested in Last Four Rounds

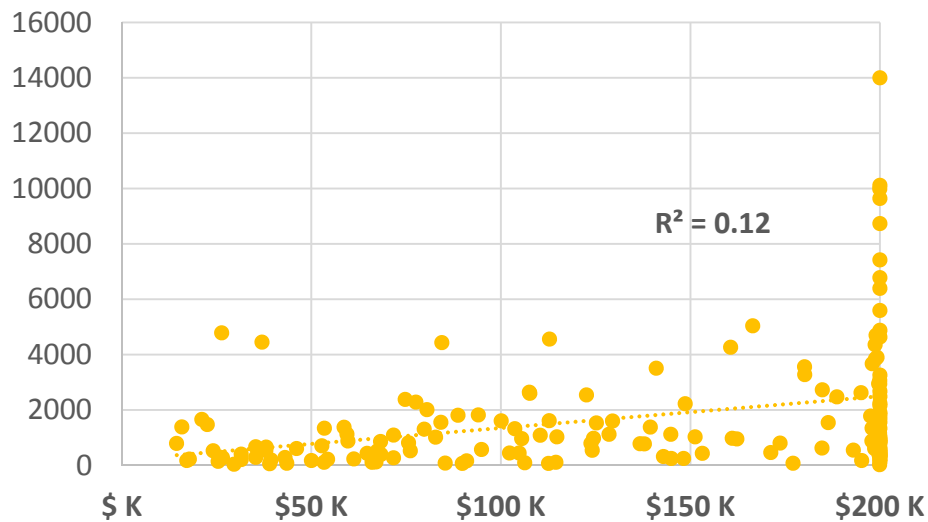
## 2015 Rd 3



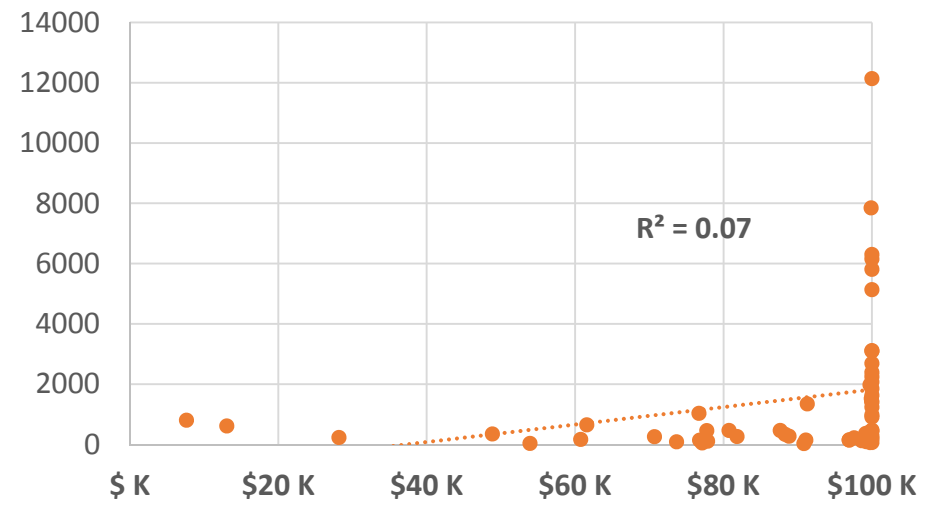
## 2016 Rd 4



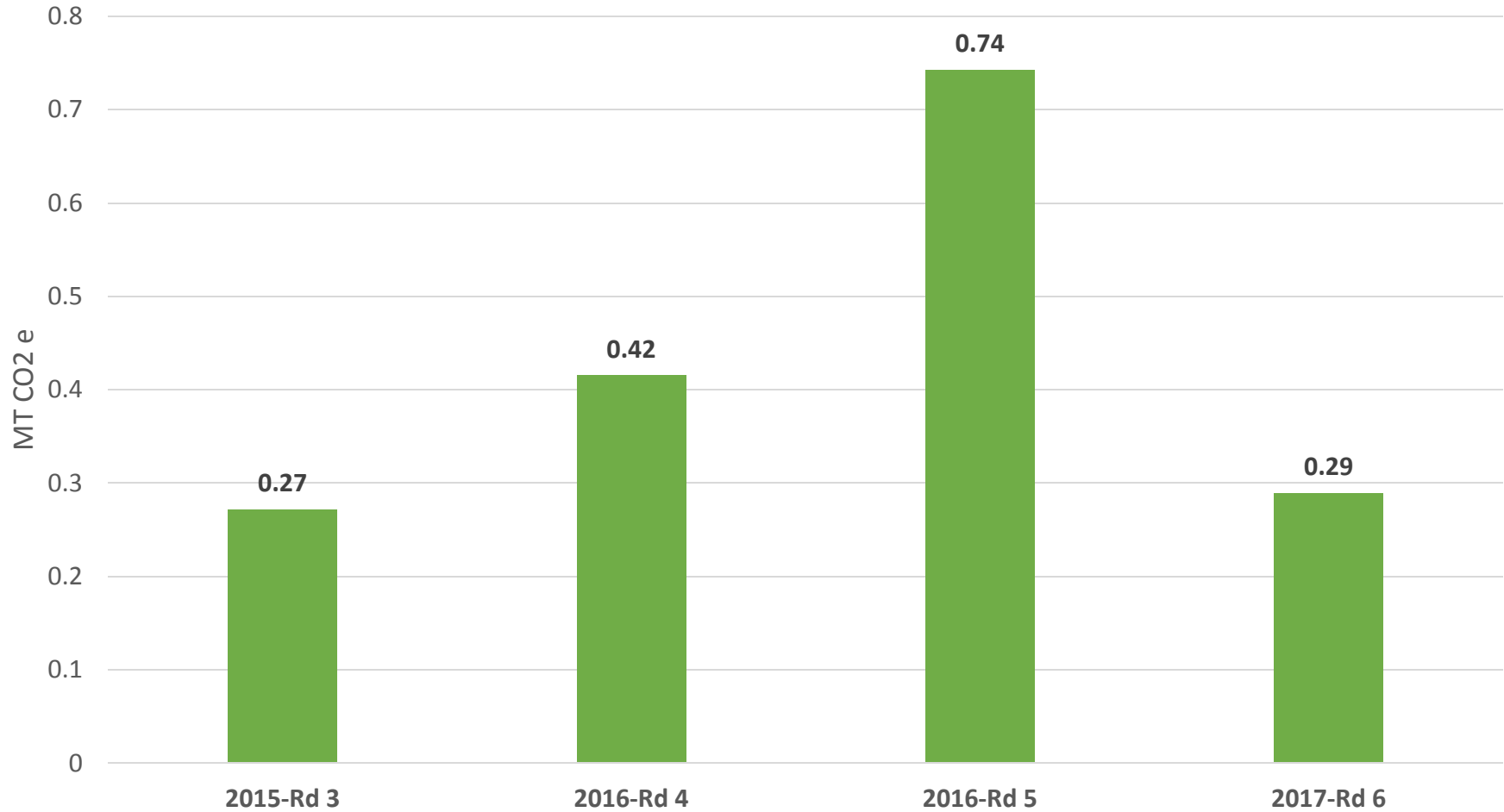
## 2016 Rd 5



## 2017 Rd 6



# Total GHG Reduction (Project Life) for Every CDFA \$ Spent



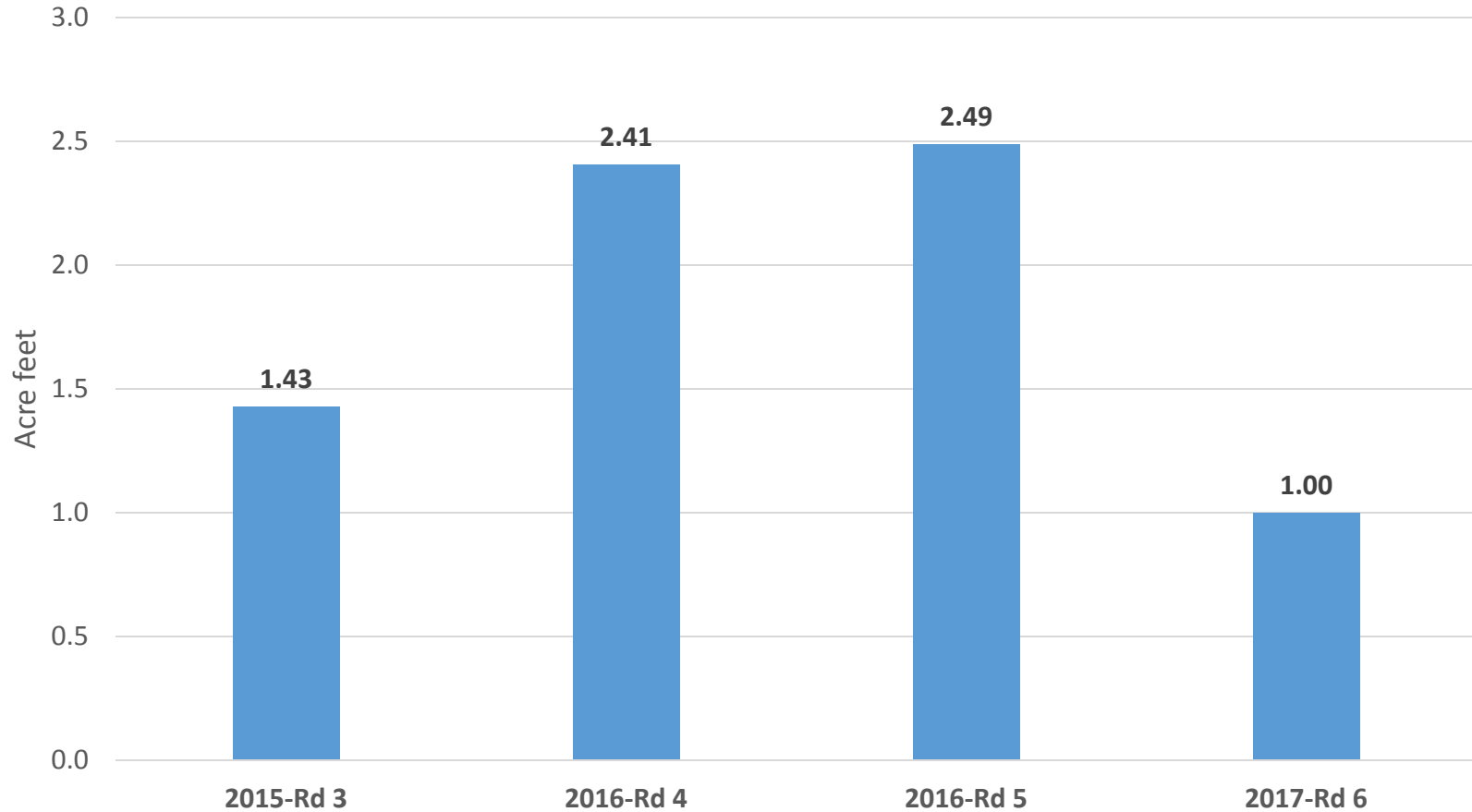
Total Award (Cap) \$10 M (150K)

\$16 M (\$200K)

\$22 M (\$200K)

\$7.5 M (\$100K)

# Total Water Savings (Project Life) for Every CDFA \$ Spent



**Total Award (Cap) \$10 M (150K)**

**\$16 M (\$200K)**


**\$22 M (\$200K)**

**\$7.5 M (\$100K)**



# Summary

- The number of activities proposed increased over time
- There is a positive correlation between GHG reduction and funding requested
- There is also a positive correlation between water savings and funding requested
- Every \$1 CDFA investment has saved:



Round	Award Cap	GHG (MT CO2 e)	Water (Acre feet)
2015-Rd 3	\$150 K	0.27	1.4
2016-Rd 4	\$ 200 K	0.42	2.4
2016-Rd 5	\$ 200 K	0.74	2.5
2017-Rd 6	\$100 K	0.29	1.0

# THANK YOU!

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