STATE WATER EFFICIENCY AND ENHANCEMENT PROGRAM

C-AGG Sacramento
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ONGOING DROUGHT

2015 begins the fourth year of a historic drought in California.
Top - Sierra snowpack in January 2014

Bottom – Sierra snowpack in January 2013

http://e360.yale.edu/slideshow/nasa_images_show_severity_of_californias_record-setting_drought/263/1/
Emergency drought legislation bill (SB 103) signed by Governor Brown on March 1, 2014

$10 million from the Greenhouse Gas Reductions Fund for the California Department of Food and Agriculture to invest in irrigation and water pumping systems that reduce water use, energy use and greenhouse gas emissions.
Senate Bill 103 states:

“$10,000,000 shall be available for encumbrance until June 30, 2015, for consultation and coordination with the Department of Water Resources and the State Water Resources Control Board to establish and implement a program, on or before July 1, 2014...."

"...to provide financial incentives to agricultural operations to invest in water irrigation treatment and distribution systems that reduce water and energy use, augment supply and increase water and energy efficiency in agricultural applications."
Program Development
ENVIRONMENTAL FARMING ACT OVERSIGHT

The SWEEP program was implemented under the authority of the Environmental Farming Act of 1995.

Division 1, Part 1, Chapter 3, Article 8.5, Sections 560-568

Section 566 (a)
The department shall establish and oversee an environmental farming program. The program shall provide incentives to farmers whose practices promote the well-being of ecosystems, air quality, and wildlife and their habitat.
State Water Efficiency and Enhancement Program (SWEEP) built on collaborative partnerships

Posted on June 30, 2014 by Dr. Amith Gunasekara, CDFA Science Advisor

CDFA continues to accept applications for the State Water Efficiency and Enhancement Program, or SWEEP. The deadline to apply is July 15, 2014.

The program is designed to provide financial assistance to agricultural operations for the implementation of water conservation measures that increase water efficiency and reduce greenhouse gas emissions. Approximately $10 million has been made available for SWEEP through emergency drought legislation (Senate Bill 103).
PROGRAM DEVELOPMENT

1. Develop Evaluation Criteria
2. Determine Application Process
3. Technical Review
4. Quantitative Reporting of Water Savings and Greenhouse Gas Reductions
5. Verification of Project Completion
APPLICATION PROCEDURES
EVALUATION CRITERIA

1. Largest water savings (acre-inches/year/acre).
2. Largest GHG savings (Tonnes CO\textsubscript{2} equivalent/year/acre).
3. In a D3 or D4 drought designation area according to U.S. Drought Monitor.
4. Use of soil moisture sensors with electronic data output and flow meters, or electronic weather station linked to irrigation controller, for growers to ensure efficient irrigation scheduling (must specify with a new or existing system); new systems receive higher ranking.
5. Use of evapotranspiration (ET) based irrigation scheduling, such as the California Irrigation Management Information System (CIMIS), and flow meters on existing or proposed projects to optimize water efficiency for crops.
6. Reduction of GHGs from water pumping. For example, the conversion of a fossil fuel pump to solar, wind or electric.

7. Use of micro-irrigation or drip systems to replace flood or furrow irrigation.

8. Use of low pressure irrigation systems to reduce pumping and energy use.

9. Use of Variable Frequency Drives to reduce energy use and match pump flow to load requirements.

10. The use of any other management practice(s) related to on-farm water distribution that will result in water savings and GHG reductions.
Electronic application
• Location of project and crop
• Address the criteria that apply to project
• Description of existing system and water use efficiency
• Description of proposed system and quantification of expected water and greenhouse gas savings
• Use of USDA NRCS cost schedules for payment
• Long term maintenance of project

Required attachments
• Budget worksheet
• Project design
• Supporting documents for baseline water and greenhouse gas calculations
ONLINE APPLICATION

To streamline and expedite the application process, CDFA partnered with the State Water Resource Control Board - Financial Assistance Application Submittal Tool (FAAST)
PROGRAM REQUIREMENTS

• One application per agricultural operation with a unique tax ID number.

• Funds not to be used to expand existing agricultural operations.

• Projects must be used and maintained for 10 years or according to the USDA NRCS Practice Lifespan

• No combined funding with USDA, NRCS Environmental Quality Incentive Program (EQIP) financial assistance.
When applicable, grant requests not to exceed the cost provided in the USDA, NRCS payment schedule which was included in the application guidelines.

Example: For a micro-irrigation system in an orchard or vineyard greater than 10 acres in size, the payment schedule indicates a cost of $638.96 per acre. That is the maximum amount that the program will contribute to the project.
PROJECT DESIGN

Project Design:

• An explanation of how water efficiencies and GHG reductions are achieved.

• If the project included new infrastructure, such as new irrigation piping, pumps, or sensors, then a detailed schematic must be provided and include locations of that infrastructure on the field. When projects involved improvements to existing infrastructure, the project design must include a schematic showing where the improvements will be made to existing infrastructure.

• Design plans must included pertinent agronomic information, such as the crop and the water distribution uniformity value of the irrigation system.
In addition to the evaluation criteria, three additional factors were considered during the review process:

1. Environmental and social co-benefits
   Benefits could include, among others, facilitation of nutrient management, improved air quality and improved water quality.

2. Benefits to a disadvantaged community
   A “Disadvantaged Community” is defined as a community with a median household income less than 80 percent of the statewide average.

3. Matching Funds – 50% matching funds were encouraged, but not required.
RESOURCES

Applicants needed help with greenhouse gas calculations and water calculations

- CDFA worked with California’s 3 largest utilities to provide contact information for consultation and on-farm energy audits
- Linked GHG tools from EPA and USDA
- Adapted a fuel savings tool for SWEEP growers to utilize for GHG savings
VERIFICATION COMPONENT

• Recipients agree to a verification component.

• CDFA coordinating with the Resource Conservation Districts (RCD) to verify proper completion of the project, and to gather quantitative data on water efficiencies gained and reduction of GHG emissions achieved.

• The verifier will have a checklist of items to confirm including:

  ✓ Was the system installed properly (as indicated in the design)?

  ✓ Does it function as designed?

  ✓ Evaluate GHG reductions and water savings
RESULTS
FIRST SOLICITATION RESPONSE

• Application Period
  • June 16 – July 29, 2014

• 5 Application Workshops and 1 webinar were held throughout the state

• 130 applications received; totaling $5.3 million in requested funding.

• 93 applications were awarded; totaling $3.6 million.
SECOND SOLICITATION RESPONSE

• Application Period
  • September 29 – November 10, 2014.
• 3 additional application workshops and 1 webinar were held throughout the state.
• 321 applications received; totaling $28 million in requested funding.
• 70 applications were awarded totaling $5.8 million.
• Additional projects may be awarded in order to expend all the funding - pending
OUTCOMES

SWEEP Round I funded $3.3 million for 85 different projects

• 31% - soil moisture monitoring systems for better scheduling
• 46% - micro-irrigation systems
• 20% - Energy efficient pumps (switch to electric or solar), VFD

Many different crops involved:
Strawberries, pistachios, plums, walnuts, almonds, avocados, grapes, olives, pasture/hay, citrus, apricots, tomatoes, prunes (among others).

Greenhouse gas emissions reduced, water savings, economic co-benefits, air and water quality benefits…
ACKNOWLEDGMENTS

Development and Oversight
• Department of Water Resources
• State Water Resources Control Board
• Air Resource Board

Program Advisors
• CDFA’s Environmental Farming Act, Science Advisory Panel
• USDA Natural Resource Conservation Service
• Public Comments
• Agricultural Associations / Commodity Groups

Third Party Involvement
• CA Association of Resource Conservation Districts
• Resource Conservation Districts
• Cal Poly Irrigation Training & Research Center
• CSU Fresno Center for Irrigation Technology
• University of California
QUESTIONS AND COMMENTS

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