

State Water Efficiency and Enhancement Program Block Grant Pilot

Request for Grant Applications (RGA)

Pages 27-32

Requirements and Restrictions for On-farm SWEEP Projects

This section describes the program requirements that must be met when BGRs select on-farm projects, support implementation, and verify project completion.

All on-farm projects must reduce on-farm water use and reduce GHG emissions. CDFA has identified the following strategies that address water conservation and GHG emission reductions. On-farm projects may incorporate several strategies listed below to achieve both water conservation and GHG emission reductions.

Water Savings Strategies

Weather, Soil, or Plant Based Sensors for Irrigation Scheduling

- Examples include the use of soil moisture or plant sensors (United States Department of Agriculture (USDA) Natural Resource Conservation Service
- (NRCS) Conservation Practice Standard (CPS) 449 may apply) with electronic data output, the use of weather station(s) linked to an irrigation controller to ensure efficient irrigation scheduling, or the use of evapotranspiration (ET) based irrigation scheduling, such as the California Irrigation Management Information System (CIMIS) to optimize water use efficiency for crops.
- Telemetry components that allow electronic communication between technology devices are eligible for funding through SWEEP.
- For use of ET-based irrigation scheduling, provide sufficient documentation to show that water deliveries can be made on a consistent basis to accommodate that scheduling.

Irrigation System Changes

- Examples include conversion to a more water-efficient irrigation method or improvement of an existing irrigation method to conserve water.
- Project designs should follow NRCS CPS 441, 442, 443 specifications.
- Those applicants currently utilizing surface water (e.g., canal or river water) to flood irrigate crops are encouraged to maintain flood irrigation infrastructure along with any proposed efficient micro irrigation system(s), in order to facilitate groundwater recharge when surface water is available for recharge.

Greenhouse Gas Emission Reductions Strategies

Fuel Conversion

- Examples include pump fuel conversion resulting in reduction of GHG emissions, such as replacing a diesel pump with an electric pump.
- Renewable energy that is used to power irrigation systems is also eligible for SWEEP funding and can reduce GHG emissions.

Improved Energy Efficiency of Pumps

- Examples include retrofitting or replacing pumps, or the addition of variable frequency drives to reduce energy use and match pump flow to load requirements.

Low Pressure Systems

- For example, the conversion of a high-pressure sprinkler system to a low-pressure micro-irrigation system or lower pressure sprinkler system to reduce pumping and energy use.
- Project designs should follow NRCS CPS 441 or 442 specifications.

Reduced Pumping through Water Savings Strategies

- For example, improved irrigation scheduling may lead to reduced pump operation times.

Other Management Practices

CDFA supports innovative projects and recognizes there is variability in irrigation systems throughout California. For this reason, applicants may propose project components that do not fit into the above project types as long as water savings can be estimated and GHG reductions can be quantified using the SWEEP GHG Quantification Methodology.

Required Documentation for On-Farm Projects

BGRs are required to submit the following attachments for each of the on-farm project sites:

1. Project Design

Project designs must include the following:

- Labeled Assessor's Parcel Numbers (APNs)
- Detailed schematic of the locations of proposed for improved infrastructure and technology including irrigation piping, reservoirs, pumps, and sensors
- Pertinent agronomic information, such as the crop and water source
- Location, engineering and energy output specifications of any proposed renewable energy installations
- Project overview using aerial imagery software (e.g., online or electronic mapping tools)
- Location of existing flow meters and location of flow meters proposed to be installed through the project.

2. Geotagged/dated photos

The geotagged and dated photos should reflect the current conditions at the project site including crop, irrigation system and pumps.

3. Completed SWEEP Irrigation Water Savings Assessment Tool

The tool must be used to demonstrate baseline water use and projected water savings estimates. Complete the "before" tab of the calculator to estimate baseline water use on the field with the current crop and irrigation practice and complete the "after" tab to estimate the projected water savings after project installation. The estimated water savings will be shown on the "Estimated Water Savings" tab of the calculator. Supplementary information that will allow refined water savings estimates may also be submitted.

4. Completed GHG Calculator Tool

To determine the impact of the proposed project on GHG emissions, applicants must follow the California Air Resources Board (ARB)-approved GHG Quantification Methodology. This methodology utilizes a GHG Calculator Tool developed by ARB to estimate GHG emission reductions from changes in fuel use. Grantees are required to complete and attach the GHG Calculator Tool. Grantees must use energy records from the previous calendar year (January through December) and other on-farm specifications (e.g., pump tests) to complete the calculator. Note that the estimated water savings from the SWEEP Water Savings Assessment Tool is a required input of the ARB GHG Calculator Tool, so the GHG Tool should be filled out after the Water Savings Tool.

5. Supporting Documentation for GHG Calculations

To complete the GHG calculator, the following supporting documentation will be needed. Supporting documentation will be submitted along with the calculator tool and must be sufficient to allow reviewers to replicate the calculations. Required documentation includes:

- Utility bills, actual fuel receipts, and/or field operational logs covering the previous growing year (12 months; January to December).
- In situations where the project involves crop rotation, up to three years of supporting documents may be provided to substantiate a representative baseline of energy use from pumping.
 - Documents must capture actual, not estimated or modelled, energy use data (e.g., gallons, kWh, etc.).
 - Documents must indicate a specific time period (e.g., months/dates) for the on-farm energy use. For months with no on-farm energy use, indicate no usage for those months.
 - Field operational logs are defined as on-farm records compiled during a growing season and maintained as a common business practice by the agricultural operation to capture an actual time period (e.g., months and dates) of on-farm energy use (e.g., gallons, kWh, etc.). Documents that provide estimates are not considered field operational logs.
- Pump and motor specifications for any proposed pumps.
- Pump efficiency tests for existing pump(s) related to the proposed project.

6. Budget

A budget template will be provided by CDFA to document estimated expenditures, not to exceed \$200,000, for an on-farm project. The budget template will include the following cost categories: Supplies and equipment, labor, and other. The budget should also reflect the costs anticipated with each of the following water conservation and/or GHG reduction strategies: irrigation system improvements, irrigation water management tools, pump and energy improvements, solar/renewable energy, and other management practices.

Examples of **allowable on-farm costs** associated with SWEEP projects include:

- Installation of photovoltaic panels to power irrigation systems
- All components of irrigation systems
- Sensor hardware and telemetry
- Software associated with sensors and weather stations
- Flow meters
- Permits

Unallowable on-farm project costs include, but are not limited to:

- Project design costs (e.g., engineering)
- Costs associated with technical assistance or project management, including drive time and fuel cost
- Post-project service charges or subscriptions that extend past the end of the grant term and maintenance costs associated with the irrigation system
- Non-labor costs (e.g., management) and fees associated with project oversight
- Labor costs in excess of 25 percent of the total on-farm project costs
- Any labor provided by the Grant Beneficiary's employees (such costs could be categorized as "in-kind")
- Supplies and equipment costs not related to irrigation or water distribution systems (e.g., lighting, water efficiency improvements related to food processing)
- Renewable energy may only be funded where water pumping is, or will be, electric.
- Tools and equipment with useful life of less than two years
- Costs associated with drilling or expanding groundwater wells

- Irrigation training courses
- Pump efficiency tests
- Leasing of weather, soil and irrigation water-based sensors for irrigation scheduling
- Purchase of trees, crops, or seeds
- Purchase of soil amendments
- Research
- Conversion of land to agricultural production

Continuing Expectations for SWEEP Projects

CDFA will monitor and report on the continuing outcomes of SWEEP on-farm projects. This reporting increases transparency and accountability of the program and allows CDFA to quantify the benefits of the program. To meet reporting requirements, CDFA has the following expectation of Grant Beneficiaries:

- Grant Beneficiaries will use and maintain the funded system for a minimum of 10 years, to the extent feasible, or according to the United States Department of Agriculture (USDA), Natural Resources Conservation Services (NRCS) Practice Life Span Table.

A CDFA environmental scientist or CDFA-designated third-party may request the post-project records from Grant Beneficiaries for three years following project completion. Grant Beneficiaries will gather and provide the following documentation related to the on-farm SWEEP projects.

Water Savings

- Collect and maintain actual on-farm water use records directly related to the SWEEP project for three years following the complete installation of the on-farm project.
- Water use documentation must include water bills, flow meter readings, or other on-farm water records.

GHG Emissions Reduction

- Collect and maintain actual on-farm energy use records directly related to the SWEEP project for three years following complete installation of the on-farm project.
- Energy use documentation must be consistent or comparable with the supporting documentation provided with the original SWEEP project summary, including utility bills, fuel receipts, and field operational logs.