HEALTHY SOILS PROGRAM

April 4, 2018
C-AGG CONFERENCE
Sacramento, CA

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California Department of Food and Agriculture
CALIFORNIA HEALTHY SOILS INITIATIVE

400 More than 400 agricultural commodities in California, including unique specialty crops

No. 1 California remained the No. 1 state in cash farm receipts in 2016, with over $45 billion in revenue from over 77,000 farms and ranches (#1 for more than 50 years).

CA has some of the most fertile and diverse agricultural soils in the world.


California Healthy Soils Initiative: 2015

cdfa.ca.gov/healthysoils/

First California Healthy Soils Week: 2017

cdfa.ca.gov/healthysoils/soilsweek.html
HEALTHY SOILS PROGRAM (HSP): OBJECTIVE AND FUNDING

Objective: To build soil carbon and reduce agricultural GHG emissions through incentives.

CDFA received $7.5 million in FY 2016-17 to develop and administer a new incentive and demonstration program on the CA Healthy Soils Initiative from the Greenhouse Gas Reduction Fund.

Two components of HSP:
  Incentive Program ($3.75M): on farm implementation.
  Demonstration Projects ($3M): implementation and outreach to other farmers and ranchers.
Soil Management Practices

Cropland Management Practices
Mulching (484)
Residue and Tillage Management - No-Till (329)
Residue and Tillage Management - Reduced Till (345)
Cover crops (340)

Compost Application Practices

Compost Application to Annual Crops (CDFA)
Compost Application to Perennials, Orchards and Vineyards (CDFA)
Compost Application to Grassland (CDFA)

Cropland to Herbaceous Cover Practices:

Herbaceous Wind Barriers (603)
Vegetative Barriers (601)
Riparian Herbaceous Cover (390)
Contour Buffer Strips (332)
Field Border (386)
Filter Strip (393)

Establishment of Woody Cover Practices:

Windbreak/shelterbelt establishment (380)
Riparian Forest Buffer (391)
Hedgerow Planting (422)
Silvopasture (381)
The California Air Resources Board (CARB) developed a quantification methodology (QM) for the Healthy Soils Program in collaboration with CDFA and USDA-NRCS:

Based on Comet-Planner and DNDC modeling.

Ease of use - based on management practice and acres implemented.

Compost Application: compost-planner.com/
All other practices: http://comet-planner-cdfa.hsp.com/
• Established based on scientific literature review, the recommendations of a sub-committee of scientists established by the Environmental Farming Act – Science Advisory Panel and public comments.

• Rates eligible for funding, actual application rates may differ.

<table>
<thead>
<tr>
<th>Crop Type</th>
<th>Compost Type</th>
<th>Dry Tons/Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Crops</td>
<td>Higher N (C:N ≤ 11)</td>
<td>2.2 – 3.6</td>
</tr>
<tr>
<td></td>
<td>Lower N (C:N &gt; 11)</td>
<td>4.0 – 5.3</td>
</tr>
<tr>
<td>Tree / Perennial</td>
<td>Higher N (C:N ≤ 11)</td>
<td>1.5 – 2.9</td>
</tr>
<tr>
<td></td>
<td>Lower N (C:N &gt; 11)</td>
<td>4.0 – 5.3</td>
</tr>
<tr>
<td>Rangeland</td>
<td>Lower N (C:N &gt; 11)</td>
<td>4.0 – 5.3</td>
</tr>
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HSP INCENTIVES PROGRAM

- Eligibility: California farmers, ranchers, Native American Indian Tribes.
- Up to $50,000 per project
- CDFA funds in years 1 and 2, matching funds from award recipient in year 3.
- Standard payment rates.
- Project verification

HSP DEMONSTRATION PROJECTS

Eligibility: Non-profits, University Cooperative Extension Services, Federal/University Experiment Stations, Native American Tribes, Growers in partnership with Resource Conservation Districts (RCDs) or one of the aforementioned entities.

Project types:
Type A: Implement practice, measure GHG data and conduct outreach; up to $250,000
Type B: Implement practice and conduct outreach; up to $100,000.

Outreach: Awarded projects to invite 40 other growers per year to site to showcase and share information on practices.

CDFA funds years 1 and 2.
2017 HSP Awarded Projects

- **Incentives Program**
  - 51 projects
  - 22 counties
  - 8,992 tons CO2e/yr GHG Reduction
  - $1.4 Million requested in grants
  - $1.62 million in matching funds

- **Demonstration Projects**
  - 22 projects
  - 18 counties
  - 1,642 tons CO2e/yr GHG Reduction
  - $3.2 Million requested in grants
  - $2.5 Million in matching funds

Note: Final grant awards subject to change pending CDFA budget evaluations.
**2017 HSP INCENTIVES PROGRAM**

**Number of Awards by Farm Size**

- Less than 50 acres: 41%
- 50-99 acres: 14%
- 100-249 acres: 24%
- 250-499 acres: 14%
- 500-999 acres: 5%
- >1000 acres: 1%

Average CA farm size: 329 acres
78% projects on smaller farms

Applications Received: 66
Selected for Awards: 51

71% of the awarded projects implement more than one practice.

**Most Popular Practices by Number ofProjects**

- Woody Cover: 19 projects
- Compost Application: 40 projects
- Cover Crops: 25 projects
- Other practices: 46 projects

<table>
<thead>
<tr>
<th>Practice Type</th>
<th>Number of Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compost Application</td>
<td>40</td>
</tr>
<tr>
<td>Cover Crops</td>
<td>25</td>
</tr>
<tr>
<td>Woody Cover</td>
<td>19</td>
</tr>
<tr>
<td>Reduced/No-Till</td>
<td>7</td>
</tr>
<tr>
<td>Mulching</td>
<td>5</td>
</tr>
<tr>
<td>Herbaceous Cover</td>
<td>3</td>
</tr>
<tr>
<td>&gt;1000 acres</td>
<td>1</td>
</tr>
</tbody>
</table>
Most Popular Practices by Acres of Implementation

- Compost Application: 58%, 2,793 acres
- Cover Crops: 25%, 1,228 acres
- Mulching
- Reduced/No-Till
- Herbaceous Cover
- Woody Cover

Majority (~92%) of GHG reductions achieved through compost application: high acreage of adoption

8,992 tons of CO$_2$e =

Source: https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator
TECHNICAL ASSISTANCE

Workshops conducted by CDFA and 3rd-party Technical Assistance Providers (TAPs) funded by CDFA:

- Resource Conservation Districts
- University Cooperative Extension
- Non-profit organizations.

32 workshops in 19 counties
295 in-person attendees, 101 remote attendees.
149 received additional assistance from TAPs.

Feedback provided by TAPs and applicants informs future process improvements.
Insufficient time to apply.

Timing of other farm activities did not allow.

No Technical Assistance available.

Application/QM too complicated.

Too much information needed to apply.

Insufficient payment rates.

Not able to provide Year 3 cost-share.

n =15-19
FUTURE FUNDING

2017 HSP Second Solicitation:
    Released: March 6, 2018.
    Applications due: April 13, 2018.

POTENTIAL FUTURE FUNDS:

$10 million
    SB-5 California Drought, Water, Parks, Climate, Coastal Protection, and Outdoor Access For All Act of 2018

$5 Million
    2018-19 Governor’s Budget (Proposed)
EXPANDING THE SUITE OF MANAGEMENT PRACTICES UNDER THE HSP

- 11 proposals, listing 31 practices received.
- CDFA evaluation process:
  - Publicly available research data in support of demonstrated C-sequestration through a proposed practice.
  - Ability to incorporate into GHG quantification tools (e.g., already an NRCS Standard Conservation Practice).
- Examples of practices being evaluated: nutrient management, prescribed grazing, conservation cover, alley cropping and more...

https://www.cdfa.ca.gov/oefi/efasap/docs/AgendaEFASAPMeeting-03152018.pdf
PARTNERSHIPS FOR SOIL HEALTH

CDFA
OEFI

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Reference Links:

Healthy Soils Initiative:
www.cdfa.ca.gov/healthysoils/

First California Healthy Soils Week: 2017
https://www.cdfa.ca.gov/healthysoils/soilsweek.html

CDFA Healthy Soils Program:
https://www.cdfa.ca.gov/oefi/healthysoils/

Examples of practices being evaluated for addition into HSP:
https://www.cdfa.ca.gov/oefi/efasap/docs/AgendaEFASAPMeeting-03152018.pdf

GHG quantification for compost application:
http://www.compost-planner.com/

GHG quantification for all other practices:
http://comet-planner-cdfahsp.com/