

CDFA HEALTHY SOILS PROGRAM

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Outline

- Program Updates:
 - 2017 Healthy Soils Program (HSP) Round I
 - 2017 HSP Second Solicitation
- New Management Practices under consideration for inclusion under the HSP



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.



Note: Final grant awards subject to change pending CDFA budget evaluations.



Incentives Program

33

projects

16

counties

7,470 metric tons CO₂e/yr

GHG Reduction

- 43 applications requesting \$1.15 million
- Total grant amount requested: \$918,496
- Estimated cost share: \$706,489



Demonstration Projects

6

projects

7

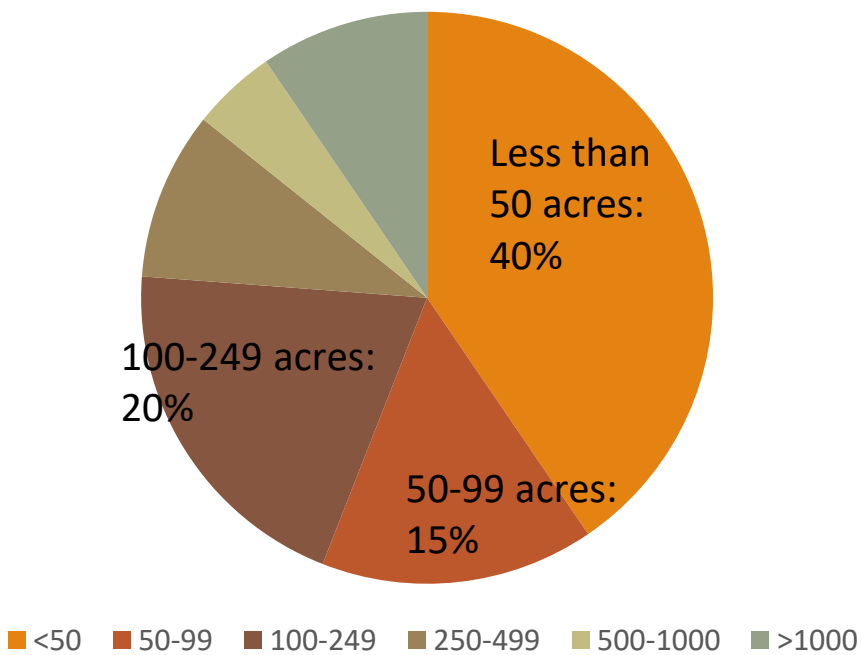
counties

446.5 tons CO₂eq /year

GHG Reduction

- 11 applications requesting \$957,587
- Total grant amount requested: \$549,429
- Estimated cost share: \$614,497

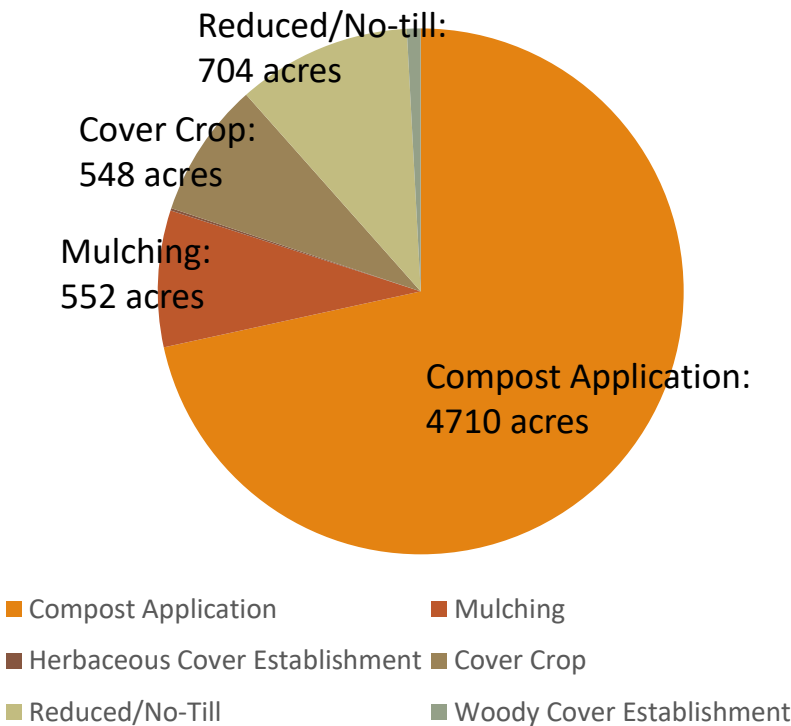
Number of Awards by Farm Size



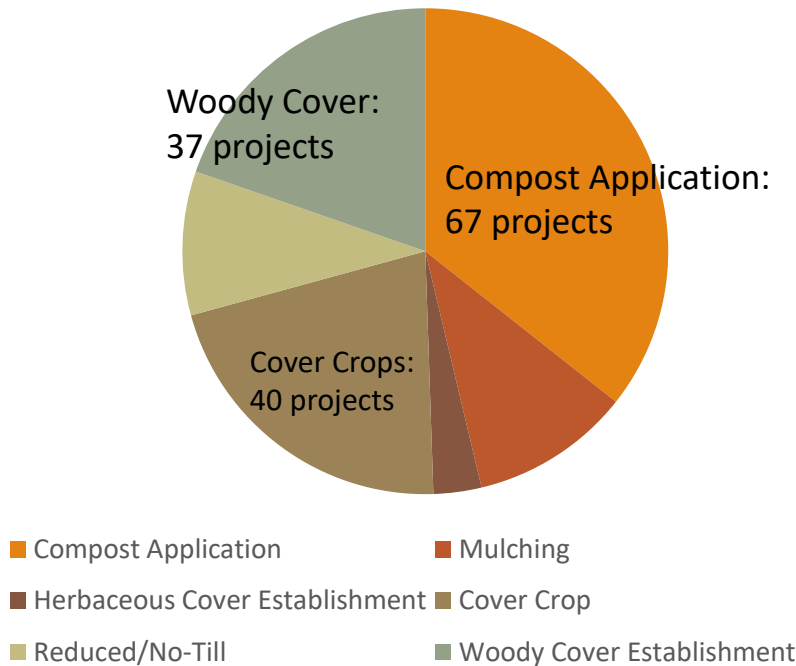
Average CA farm size: 329 acres
79% projects on smaller farms (<250 acres)

Most Popular Practices

By Acres of Implementation



By Number of Projects



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.



I. 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 Already 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.



II. Practices Already in Comet- Planner

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

Can be
accommodated
under [340](#)
Cover Crop

- Green Manure
- Cover crop and bio-diverse planting

Can be
accommodated
under [345](#)
Reduced-Till

- Semi-permanent coverage
- Alternative Inter-row tillage

Under
discussion with
CARB and
USDA-NRCS:

- Whole Almond Orchard Recycling

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

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