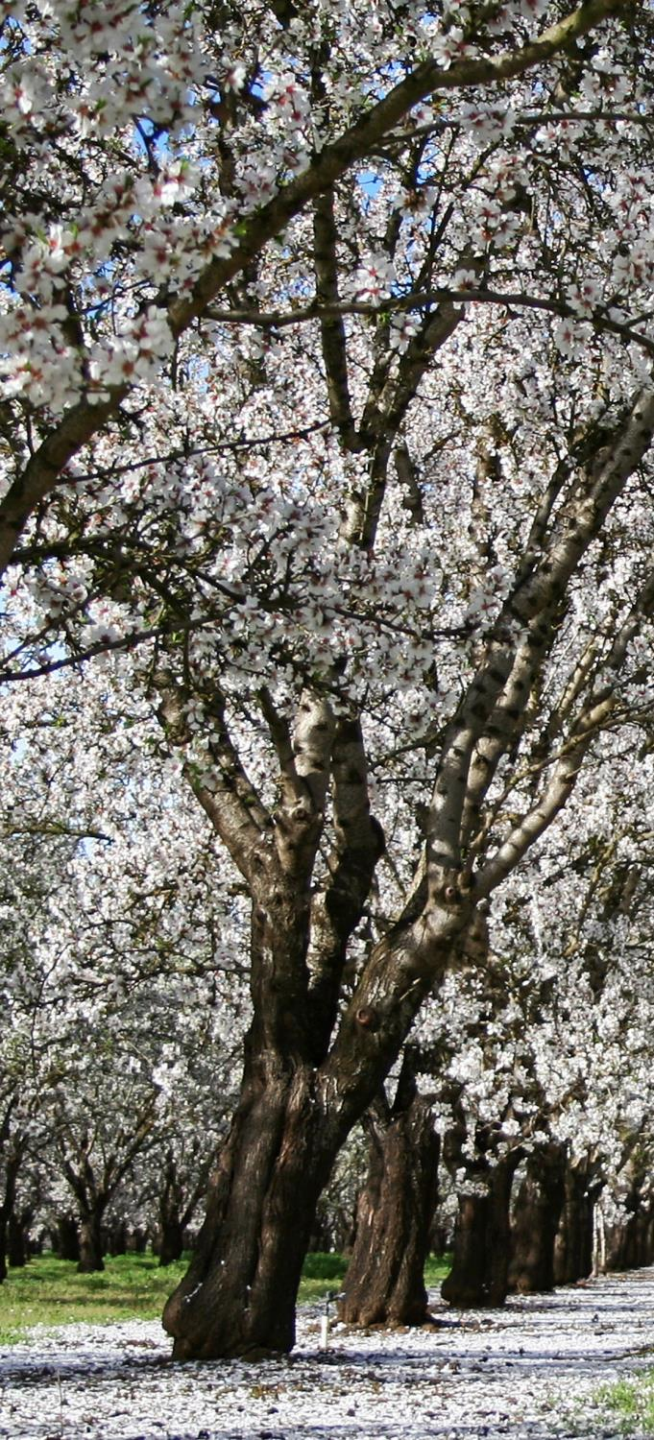

Incentives to Boost Economic and Environmental Sustainability

OFFICE OF ENVIRONMENTAL FARMING AND INNOVATION (OEFI)

AMRITH (AMI) GUNASEKARA, PhD.

MANAGER, OEFI

SCIENCE ADVISOR TO THE SECRETARY

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CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

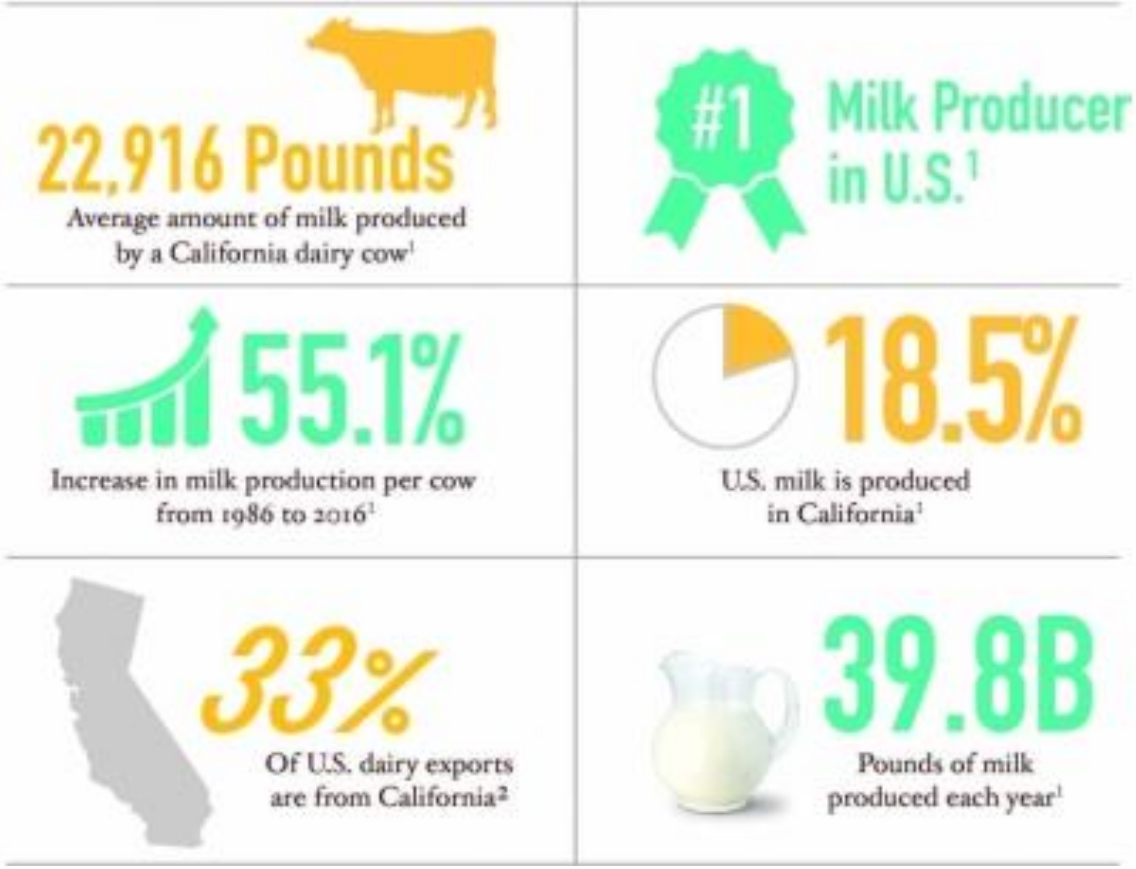
Crop and Livestock Commodities in which California Leads the Nation [1/]

Almonds	**Figs**	Melons, Cantaloupe	Pluots
Apricots	Flowers, Bulbs	Melons, Honeydew	**Pomegranates**
Artichokes	Flowers, Cut	Milk	Raspberries
Asparagus	Flowers, Potted Plants	Nectarines	**Rice, Sweet**
Avocados	Garlic	Nursery, Bedding Plants	Safflower
Beans, Dry Lima	**Grapes, Raisins**	Nursery Crops	Seed, Alfalfa
Beans, F.M. Snap	Grapes, Table	**Olives**	Seed, Bermuda Grass
Bedding/Garden Plants	Grapes, Wine	Onions, Dry	**Seed, Ladino Clover**
Broccoli	Greens, Mustard	Onions, Green	Seed, Vegetable and Flower
Brussels Sprouts	Hay, Alfalfa	Parsley	Spinach
Cabbage, Chinese	Herbs	**Peaches, Clingstone**	Squash
Carrots	Jojoba	Peaches, Freestone	Strawberries
Cauliflower	Kale	Pears, Bartlett	Tomatoes, F.M.
Celery	**Kiwifruit**	Peppers, Chile	Tomatoes, Processing
Chicory	Kumquats	Peppers, Bell	Triticale
Corn, Sweet	Lemons	Persimmons	Vegetables, Greenhouse
Cotton, American Pima	Lettuce, Head	Pigeons and Squabs	Vegetables, Oriental
Daikon	Lettuce, Leaf	**Pistachios**	**Walnuts**
Dates	Lettuce, Romaine	Plums	Watercress
Eggplant	Limes	**Plums, Dried**	Wild Rice
Escarole/Endive	Mandarins & Mandarin Hybrids		

1/ California is the sole producer (99 percent or more) of the commodities in **bold**.

Number one milk producing state in U.S.
~1.5 million cows and ~1,500 dairy operations of different sizes
Encourages high air and water quality environmental standards

I LOVE CALIFORNIA



WATER –
Flows, SGMA, nitrates

REGULATIONS –
Air (burning), water (sediments), FSMA

LABOR –
Technology, machine learning (AI)

CLIMATE CHANGE
Mitigation and adaptation
Environmental Sustainability

Dairy Digester Research & Development Program

The Healthy Soils Program

State Water Efficiency Enhancement Program

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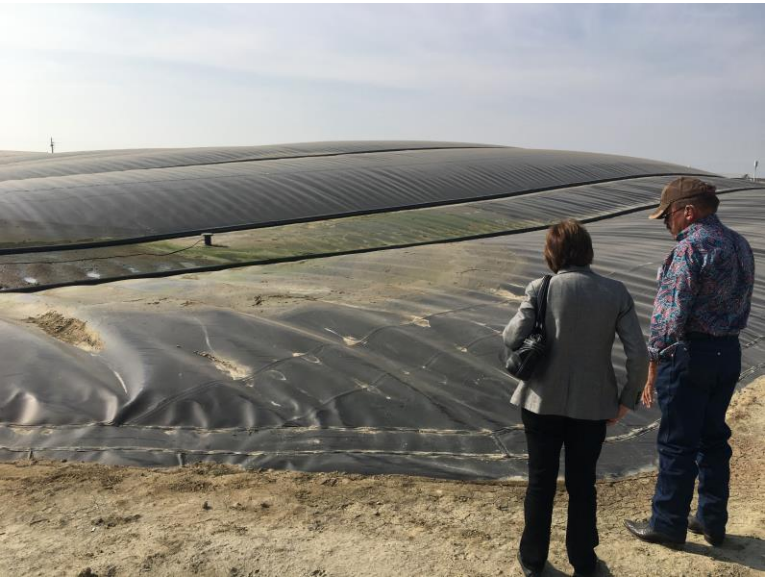
Developed using best-available science

Alternative Manure Management Program

Research

Financial assistance for the installation of dairy digesters in California to reduce methane greenhouse gas emissions



$3 million grants – must have matching funds of 50%
Total $ awarded = 112 million (another $99 million allocated in 2018-19)
63 number of projects funded
Total GHG reductions annually = 1.26 million MTCO2e
Oversubscription rate = 200%
Gas used for both renewable electricity and renewable natural gas
Multiple benefits – odor reduction, water quality

https://www.cdfa.ca.gov/oefi/ddrdp/

58 projects funded
Total GHG reductions annually = 143,300 MTCO2e
$750,000 grants – matching funds recommended but not required
Total $ awarded = 31.5 million (another $99 million allocated in 2018-19
Matching funds = $4.8 million
Oversubscription rate = 225%

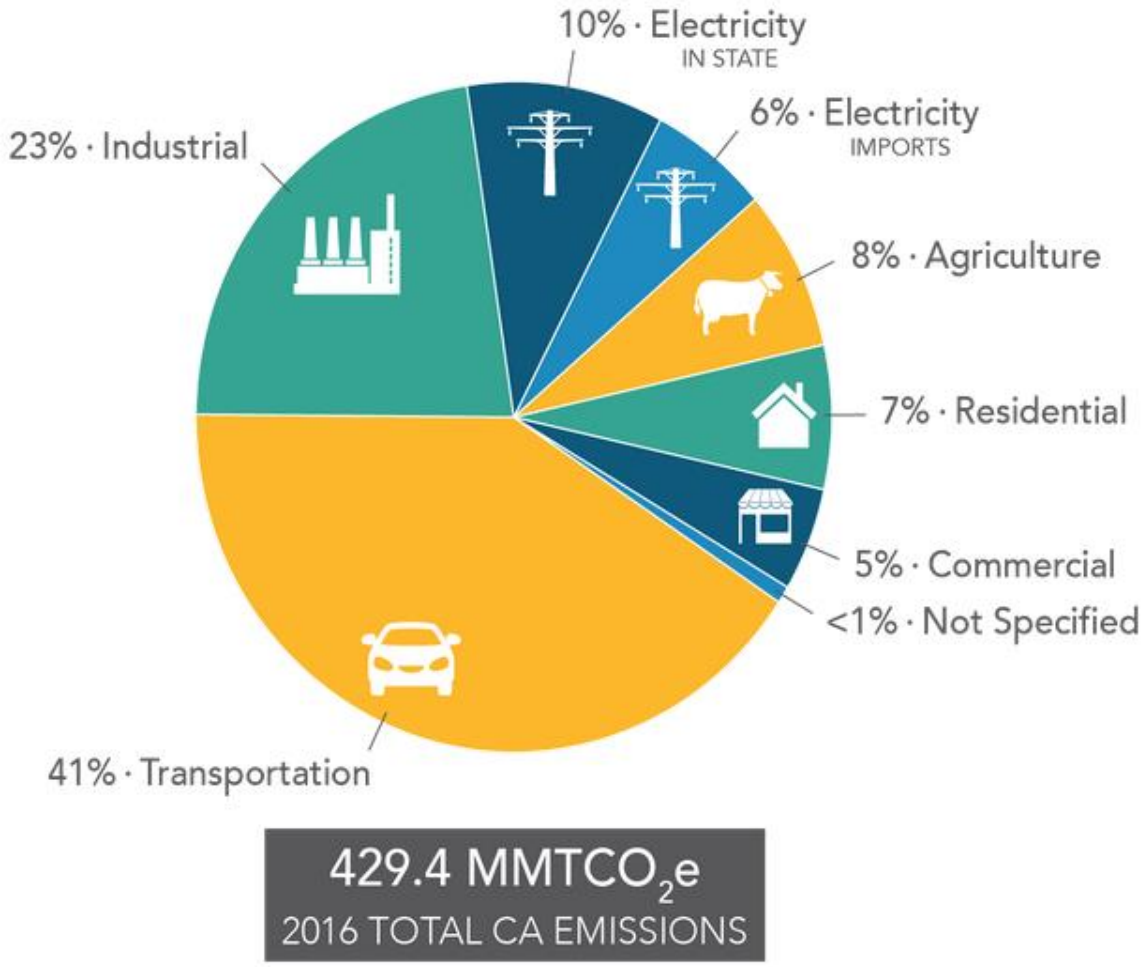
AMMP provides financial assistance for the implementation of non-digester manure management practices in California to reduce methane greenhouse gases

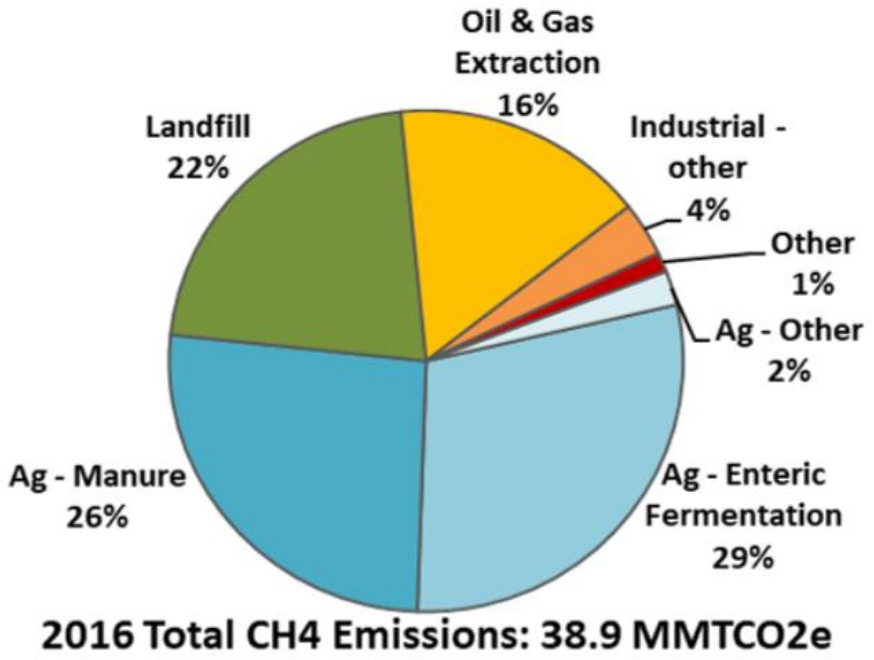
https://www.cdfa.ca.gov/oefi/AMMP/

DDRDP and AMMP work to achieve 2030 and 2050 GHG reduction goals set by Governor

80% reduction below 1990 levels by 2050 (2006)

40% reduction below 1990 levels by 2030 (2015)





Provides financial assistance in the form of grants to implement irrigation systems that reduce greenhouse gases and save water on California agricultural operations

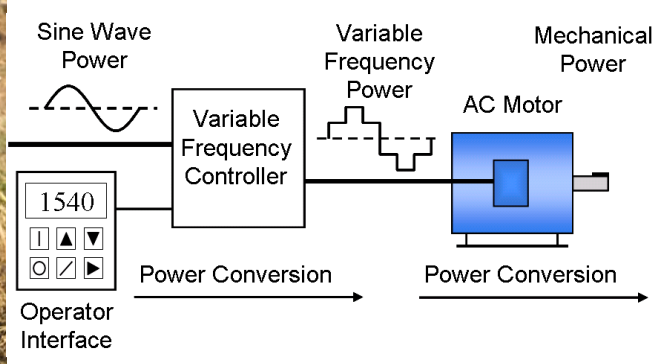
Total $ awarded = 62.7 million (another $20 million allocated in 2018-19)
Number of projects funded = 614
Total number of acres covered = 114,000
Matching funds recommended by not required. Total match to date = $40.8 million
Total GHG reductions = 75,300 MTCO2e

Total Water Reductions = 101,000 Acre feet per year
Projects are CDFA verified
3 year reporting on GHG and water savings

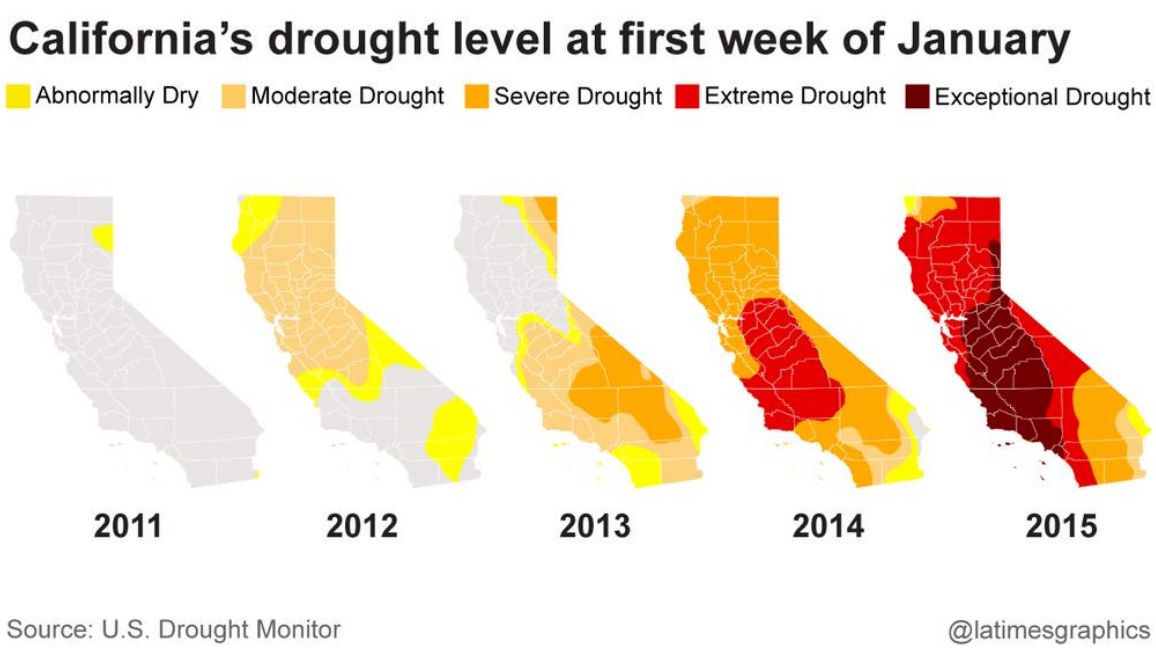
First incentive program set up by CDFA (2014)
Multiple benefits – yields, reduced sediment erosion

https://www.cdfa.ca.gov/oefi/sweep/


Agri-Valley Irrigation, Inc.
(800) 357-2269


Sine Wave Power
Variable Frequency Controller
Variable Frequency Power
AC Motor
Mechanical Power
1540
Operator Interface
Power Conversion
Power Conversion

acquired January 18, 2014



SWEEP created in 2014

The Healthy Soils Program stems from the California Healthy Soils Initiative, a collaboration of state agencies and departments to promote the development of healthy soils on California's farmlands and ranchlands

2015 International Year of Soils

healthy soils for a healthy life

Incentives Program

Demonstration Program

Soil Management Practices

- Cropland Management Practices
  - Cover Crop (USDA NRCS CPS 340)
  - Mulching (USDA NRCS CPS 484)
  - Residue and Tillage Management – No-Till (USDA NRCS CPS 329)
  - Residue and Tillage Management – Reduced Till (USDA NRCS CPS 345)
- 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

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

Establishment of Woody Cover Practices

- Woody Plantings Practices
  - Hedgerow Planting (USDA NRCS CPS 422)
  - Riparian Forest Buffer (USDA NRCS CPS 391)
  - Windbreak/Shelterbelt Establishment (USDA NRCS CPS 380)
- Grazing Lands Practices
  - Silvopasture (USDA NRCS CPS 381)

Residue and Tillage Management - No-Till (CPS 329)
Intensive Till to No Till or Strip Till on Irrigated/Non-Irrigated Cropland

NRCS Conservation Practice Standard Summary

DEFINITION: Limiting soil disturbance to manage the amount, orientation and distribution of crop and plant residue on the soil surface year around.

PURPOSE:
- Reduce sheet, rill and wind erosion
- Reduce tillage-induced particulate emissions
- Maintain or increase soil quality and organic matter content
- Reduce energy use
- Increase plant-available moisture
- Provide food and escape cover for wildlife

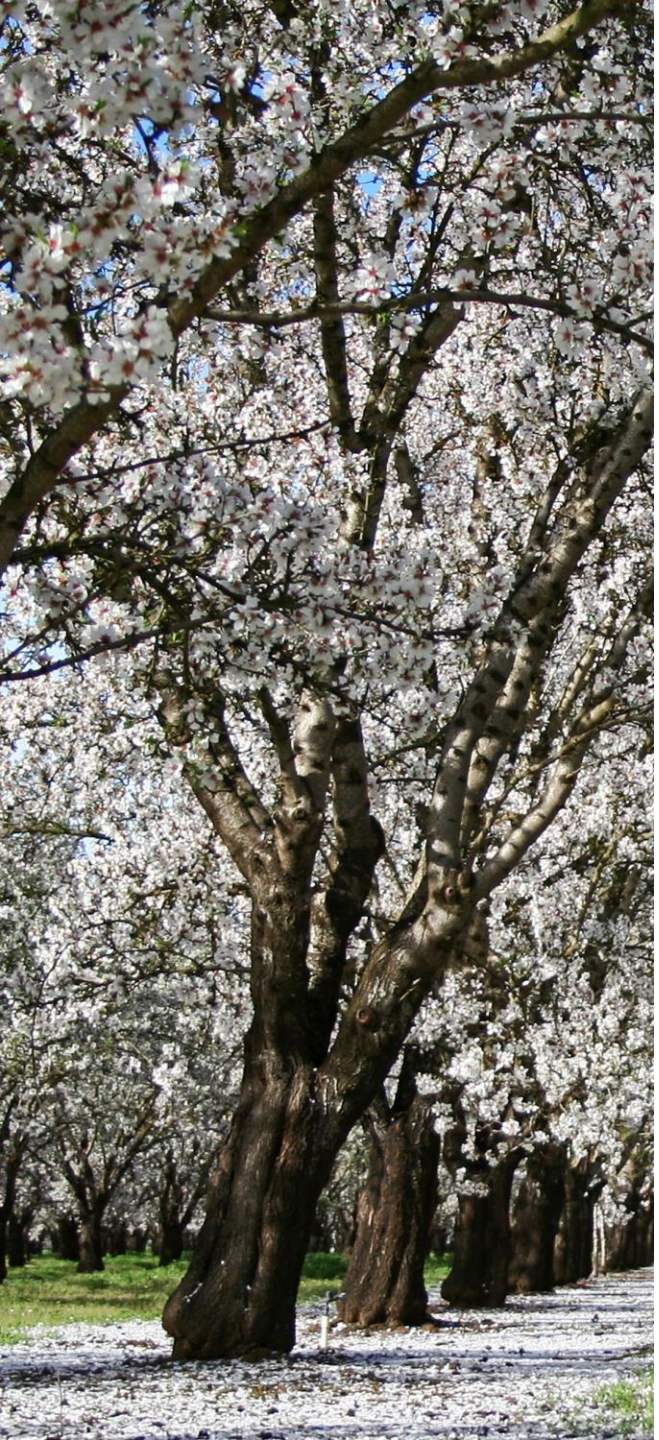
Total $ awarded = $5.8 million
(another $15 million allocated in 2018-19)
Number of projects funded = 110
Total number of acres covered = 8,600
Matching funds recommended by not required.
Total matching funds = $5.8 million
Total GHG reductions = 18,600 MTCO2e
Projects are CDFA verified
3 year reporting on GHG
Multiple benefits – water retention, sediment erosion

HSP allows growers to try and learn about soil management practices that they have not done before or implemented in parts of their farm

First program in nation to tie soil management practices with carbon sequestration in soils

Contributes to climate change adaptation and agricultural sustainability

https://www.cdfa.ca.gov/oefi/healthysoils/



THANK YOU FOR YOUR ATTENTION

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