



# Healthy Lands, Healthy People

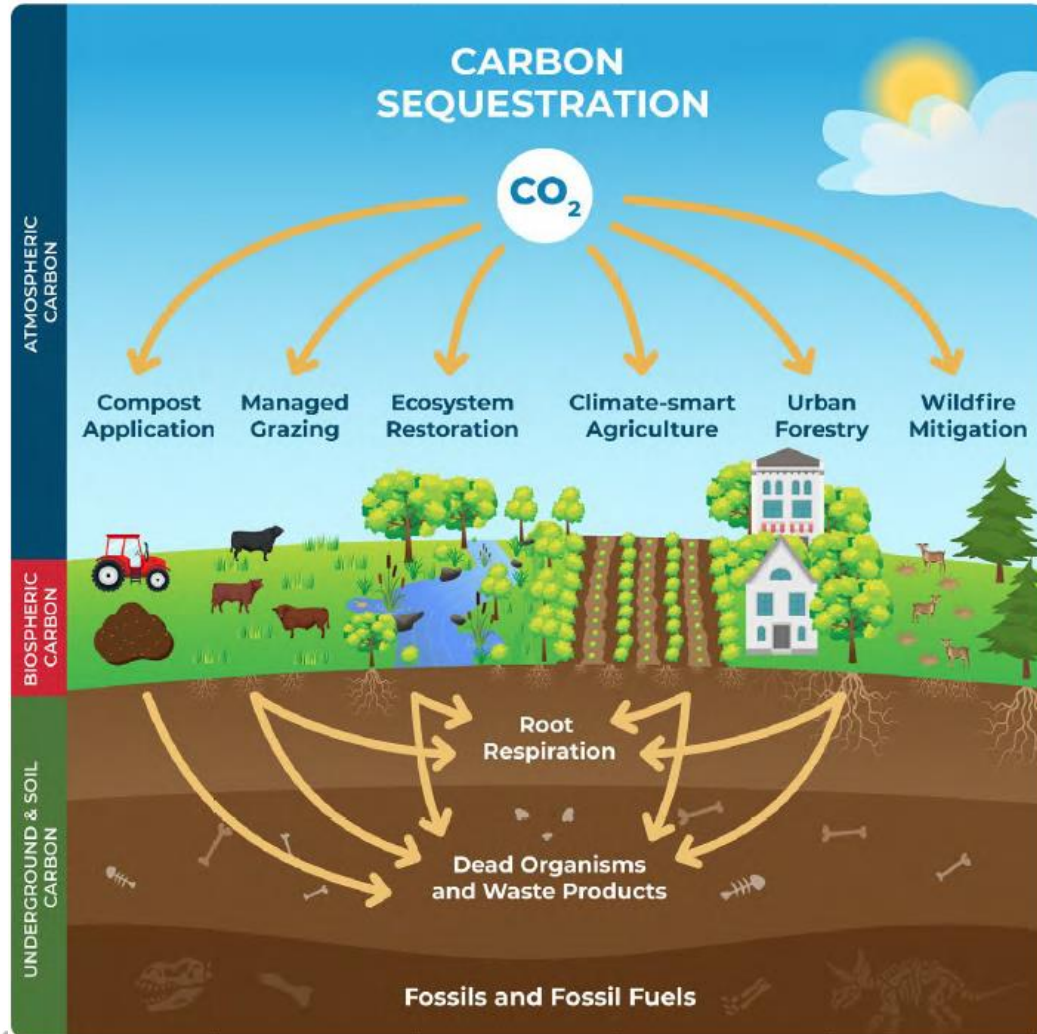
---

Carbon Sequestration Feasibility Study  
for Contra Costa County

October 3, 2023



# Project Purpose



- Identify opportunities to use different land use types in our county - agricultural, working lands, urban, suburban - to capture greenhouse gas emissions from the atmosphere and store them in vegetation and soils
- Develop inventory of current county-wide land-based carbon stocks
- Highlight potential climate smart land management practices that could result in more carbon being stored in lands in our county
- Outline opportunities for grant funding and other resources

# Project Team



Carbon Cycle Institute

- Contra Costa County Department of Conservation and Development
- Contra Costa Resource Conservation District (CCRCD)
- University of California Cooperative Extension (UCCE)
- Rincon Consultants
- Carbon Cycle Institute (CCI)

# Project Activities

- **Engagement** with community members, farmers, land managers (UCCE)
  - Video (English and Spanish)
  - Focus groups
  - Survey
- **Examine** potential to store carbon on agricultural lands (CCRCD)
  - Countywide
  - Specific farms
- **Technical analysis** countywide, all land types (Rincon)
  - Current potential
  - Best land management and agricultural practices going forward
  - Funding opportunities



# Engagement: Video, Survey, & Focus Groups

- **Promotional Videos** in English & Spanish @UCANR
- **Survey** (online)
- **Focus Groups** —in person & virtual



Healthy Lands, Healthy People

UCANR  
11.2K subscribers

Subscribe

4 | Share | ...



UNIVERSITY OF CALIFORNIA  
Agriculture and Natural Resources

UC Cooperative Extension

# Engagement: Key Findings

- Many say they are already doing economically feasible climate smart (CS) practices.
- Maintain land that is currently used for agriculture for that purpose.
- All affirmed a need for technical assistance.
- UCCE and CCRCD are seen as important sources of expertise.
- Economic incentives are essential for considering climate smart practices.
- Urban farmers are impeded by lack of capital and land tenure.



# Agricultural Land Results

- Developed targets for implementation by CCRCD Staff
- Identified scenario for strategies with greatest ability to store carbon and be adopted by land managers
  - Compost application
  - Cover Cropping/Mulching
  - Hedgerows/Windbreaks
- Identified strategies with high carbon sequestration but unknown likelihood of adoption
  - Alley Cropping
  - Rangeland Riparian Restoration



Alley Cropped beans in an orchard in Durham, CA courtesy CSU  
Chico

# Carbon Stock Inventory 2021 – Countywide, all land use types

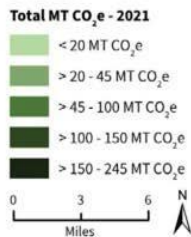
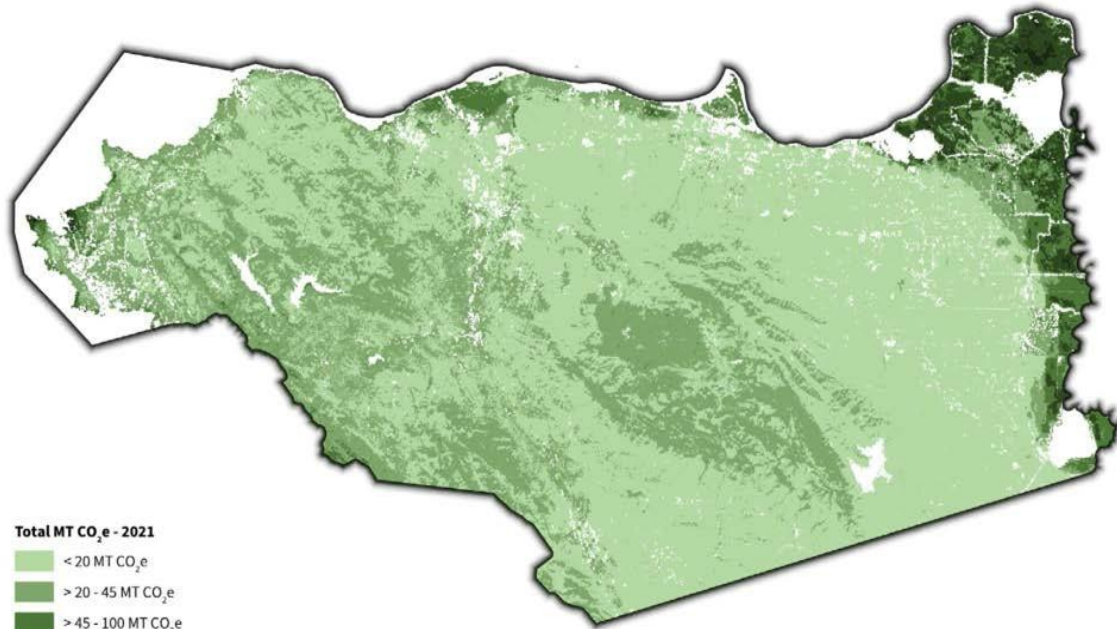
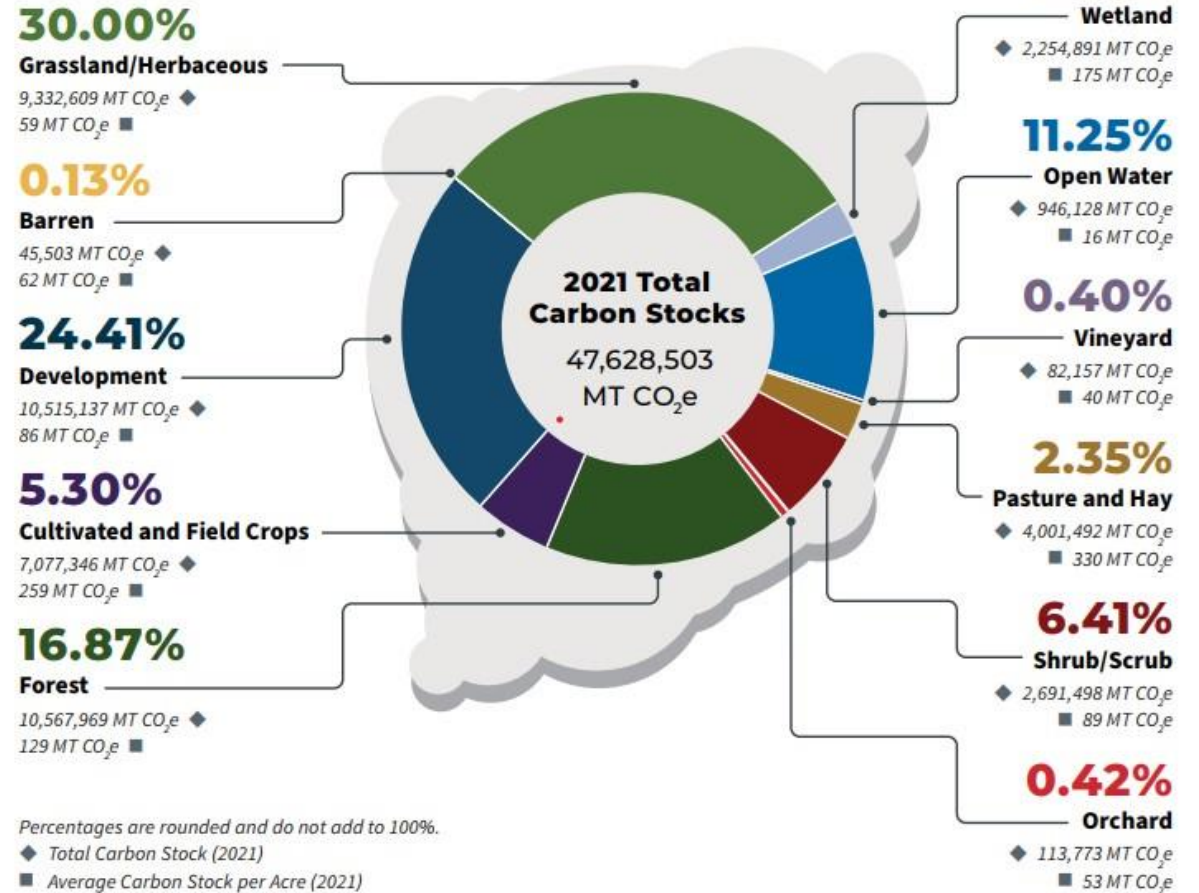


FIGURE 5. 2021 Carbon Stocks by Land Cover



# Top Potential Sequestration Practices

## 1. Compost Application



(Grazing Lands) Applying decayed organic matter to soil. Improves soil structure through the addition of carbon and provides plant nutrients.

**Carbon Sequestration Potential**  
**43,788 to 291,917**  
**MT CO<sub>2</sub>e**

## 2. Nutrient Management and Compost Application



(Row Crops) Manage rate, source, placement, and timing of plant nutrients and soil amendments, including compost application, while reducing environmental impacts.

**Carbon Sequestration Potential**  
**12,807 to 85,377**  
**MT CO<sub>2</sub>e**

## 3. Urban Forestry



Maintaining existing trees and planting new trees in urban areas.

**Carbon Sequestration Potential**  
**27,957 to 69,893**  
**MT CO<sub>2</sub>e**

## 4. 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.

**Carbon Sequestration Potential**  
**3,281 to 21,874**  
**MT CO<sub>2</sub>e**

## 5. Riparian Forest Buffer



Conserving, maintaining, and restoring forested areas adjacent to permanent or intermittent streams, lakes, ponds, and wetlands.

**Carbon Sequestration Potential**  
**2,993 to 19,950**  
**MT CO<sub>2</sub>e**



**Croplands**



**Urban Farm and Forest**



**Natural, Rangelands, and Pasture**

# Next Steps

- Accept the study.
- Consider developing a tree master plan.
- Collaborate with partners to promote conservation, restoration, and sustainable management of natural and working lands by pursuing the actions named in the study.
- Support the Contra Costa Fire Protection District in its work to improve woodland health and mitigate wildfire risk.
- Support other policies named in the study that protect the urban forest and increase urban tree cover, particularly in Impacted Communities.
- Identify, facilitate, and support mechanisms to value and fund local carbon sequestration projects.



Thank you!

# APPENDIX

## Measures and Actions

## Measures & Actions

- Measures and actions define the specific **policies, programs,** and **steps** the County and its partners could implement to:
  - assist in reaching the state and County's **2045 carbon neutrality** goal
  - **Increase the health** of the county's lands and people



# Measures & Actions

## MEASURE 1: Promote Climate Smart Agricultural Practices

**Action 1.1:** Pursue funding (for example, California Department of Food and Agriculture [CDFA] Climate Smart Agriculture programs) and implement a voluntary agricultural conservation incentive program to encourage more farmers and ranchers to adopt conservation practices that have the potential to contribute to climate mitigation and enhance resilience of agricultural operations.

**Action 1.2:** Partner with the Contra Costa RCD, Contra Costa County Farm Bureau, UC Cooperative Extension, NRCS, and other stakeholders to provide outreach and education to farmers and ranchers on conservation practices that contribute to climate mitigation and increase resilience, and facilitate incentives to adopt these practices.

**Action 1.3:** Provide technical assistance to farmers for developing grant applications that support healthy soil practices (e.g., and compost) such as the CDFA Healthy Soils Incentive Program.

**Action 1.4:** Promote the development of conservation easements on natural and working lands through information sharing on the County's website, strategic partnerships, supporting community engagement efforts, and pursue funding to establish easements.

**Action 1.5:** Assist farmers and rangeland managers in accessing voluntary carbon markets that pay for carbon sequestration practices. Partner with the Contra Costa Resource Conservation District to explore implementing a program to group rangelands together for more competitive grant applications, similar to the model used by the Cachuma Resource Conservation District.

**Action 1.6:** Promote incentives and grants (for example, CDFA Climate Smart Agriculture programs) to improve water, fuel, and energy efficiency in agricultural operations.

**Action 1.7:** Support programs that incentivize replacement of older, polluting farm equipment, for example the Funding Agricultural Replacement Measures for Emission Reductions Program.

**Action 1.8:** Develop a program to facilitate equipment sharing for the implementation of climate-smart land management practices for small farmers that seek to implement these practices but lack access to necessary equipment such as a no-till drill seeder, tractors, mowers, etc.

# Measures & Actions

## MEASURE 2: Promote Conservation, Habitat Restoration, and Sustainable Management of Natural and Working Lands

**Action 2.1:** Develop a comprehensive conservation plan to include portions of the County not represented in the East Contra Costa County Habitat Conservation Plan and other conservation efforts, to implement natural land conservation and habitat restoration projects. Create an equitable outreach and engagement campaign during plan development and implementation.

**Action 2.2:** Pursue funding to implement natural land conservation restoration projects.

**Action 2.3:** Increase the production of high-quality, low-contamination compost locally.

**Action 2.4:** Develop a program to facilitate compost application on burn scars, and applicable natural and working lands, including rangelands in the county.

**Action 2.5:** Develop and implement a plan for the conservation of sparsely vegetated lands, such as beaches and bare rocks, that includes educating local landholders about the importance of this land type and conservation easements for private landholders on this land type.

**Action 2.6:** Address policy barriers that prohibit or discourage the voluntary creation or restoration and management of habitats and ecosystems by coordinating with local, State, and federal agencies.

**Action 2.7:** Explore the creation/expansion of tax incentives to conserve agricultural lands.

**Action 2.8:** Implement the recommendations in the 2015 Contra Costa County Food System Analysis and Economic Strategy to protect agricultural areas at risk of development. Maintain and enforce the Urban Limit Line, encourage infill and transit oriented development, and adopt and implement policies, programs, and projects to reduce urban sprawl and avoid land conversion.

# Measures & Actions

## **MEASURE 3: Improve Health of Grasslands, Shrublands, and Woodlands and Mitigate Wildfire Ignition Risk and Fuel Load in the Wildland Urban Interface to Reduce Risk of Wildfire Events and Resulting GHG Emissions**

**Action 3.1:** Engage with the East Bay Regional Parks District, local fire districts, local Fire Safe Councils, RCD, CAL FIRE, local tribal groups, and other regional, local, and state agencies to conduct fuel treatments within their jurisdictions and along highway corridors, restoring ecosystem resilience and protecting communities through updates to the Community Wildfire Protection Plan.

**Action 3.2:** Continue community education programs to inform residents of the importance of clearing a defensible space around homes and resources available to residents. This may include tabling at community events, information resources on the County webpage, mailers, and social media.

**Action 3.3:** Continue to seek funding from CAL FIRE Wildfire Prevention Grants Program to conduct fuel reduction projects, particularly in the wildland-urban interface.

**Action 3.4:** Implement shaded fuel breaks.

# Measures & Actions

## MEASURE 4: Protect the Urban Forest and Increase Urban Tree Cover

**Action 4.1:** Develop and adopt a County Street Tree Policy which provides guidelines for the replacement of existing trees, designates suitable trees as replacements, and enables the County to partner with community groups to seek grants to sustain and nurture the County's urban forest.

**Action 4.2:** Maintain and enforce the County Landscape Standards, which set specific standards for planting and maintaining trees in the County, and Tree Protection and Preservation Ordinance which provides for the protection of certain protected trees in unincorporated areas of the County and prohibits removing trees on private property without a special permit.

**Action 4.3:** Develop an Urban Tree Plan to actively plant and maintain trees in unincorporated communities. The plan should aim to preserve and grow the County's urban tree canopy cover, for example through establishing a shade tree requirement for new development, especially in impacted communities. Successful Urban Forest Tree Plan development and implementation will depend on community engagement.

**Action 4.4:** Plant new drought tolerant and fire-resistant trees at County facilities and parks following adoption of an Urban Tree Plan.

## MEASURE 5: Facilitate Mechanisms to Value and Fund Local Carbon Sequestration Projects

**Action 5.1:** Identify costs and barriers associated with carbon offsets. Develop resources to provide assistance and increase participation from local land managers.

**Action 5.2:** Partner with the Contra Costa Resource Conservation District and other groups to develop and maintain an updated list of funding opportunities, resources, and application dates. Promote the California Natural Resources Agency (CNRA) Carbon Sequestration and Climate Resiliency Project Registry when it is launched in July of 2023.

**Action 5.3:** Establish a budget framework for investing in local carbon sequestration projects to offset the balance of communitywide emissions by 2045 in line with County targets set in the County Climate Action Plan and in support of State targets.