

Fibershed Carbon Farm Impact Report 2024





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Carbon sequestration estimations were calculated using COMET-Planner, California Department of Food and Agriculture (CDFA) COMET-Planner, COMET Farm, and data sourced from Ryals and Silver (2013).¹

¹ Rebecca Ryals and Whendee L. Silver, “Effects of organic matter amendments on net primary productivity and greenhouse gas emissions in annual grassland ecosystems,” *Ecological Applications* 23 (2013): 46–59, <https://doi.org/10.1890/12-0620.1>.



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Climate Beneficial™ work at
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Adopting climate-smart conservation practices provides land stewards the ability to both adapt to and mitigate climate extremes, such as drought and the erosive impacts of heavy rains. These “carbon farming” practices, such as compost application, crop rotations, prescriptive grazing, and cover cropping boost soil organic carbon levels, improve soil health, and provide a wide range of ecological benefits.

In our 2024 Carbon Farm Impact Report, we highlight the efforts of the land stewards in our Climate Beneficial™ Program to carry out conservation practices, and the state and federal programs we are working with to fund and expand these practices on thousands of acres in the coming years. We also outline Fibershed's newly developed Climate Beneficial™ Verified Outcomes Framework, which will further support these efforts with measurable metrics to track a holistic set of environmental and social impacts.



180,000+ acres currently enrolled in the Climate Beneficial™ Program



126 practices implemented by Climate Beneficial™ producers in 2024

724 practices implemented by Climate Beneficial™ producers since the program began in 2016



Since the inception of the Climate Beneficial™ Program in 2016, enrolled producers have implemented carbon farming practices that we estimate will **sequester 170,000+ metric tons of CO₂e over the next 20 years.**

What is MgCO₂e?

Mg refers to *metric tons* (also known as MT, “tonnes,” or “megagrams”) and is equal to 1000 kilograms or about 2,204.6 pounds. It is a common way of quantifying and measuring greenhouse gas emissions.

CO₂e (or “carbon dioxide equivalent”) is the standard unit for quantifying greenhouse gas emissions. Because different greenhouse gases contribute to global warming at varying degrees (methane, for example causes 25 times more warming than carbon dioxide) using “CO₂e” allows the impact of all greenhouse gas emissions to be expressed in a common unit, where 1 Mg CO₂e is the global warming equivalent of 1 metric ton of carbon dioxide.

Common Carbon Farming Practices and Co-Benefits



Compost Application on Rangeland and Cropland

- Up to 40%–70% increase in forage production without synthetic inputs
- Increases soil water holding capacity
- Improves soil health



Hedgerows

- Creates habitat for beneficial insects, songbirds, small mammals
- Can act as living fence and wildlife corridor, which minimizes the impact of habitat fragmentation
- Key practice for natural integrated pest management
- Reduces distribution of airborne particulate matter



Riparian Restoration

- Key practice for natural integrated pest management
- Improves surface water flows
- Minimizes soil erosion and movement of chemicals, pesticides, pathogens, and nutrients between surface and ground water
- Often provides highest carbon draw down per acre, per year
- Lowers elevated water temperatures, which benefits native aquatic flora and fauna
- Restores habitat in localized biodiversity hot spots



Silvopasture

- Increases soil water holding capacity
- Protects soil from wind and water erosion, which improves overall soil health
- Increases food supply for insects, birds and other wildlife
- Provides shade and improved forage for livestock



Elimination of Glyphosate-Based Herbicide and Chemistry Reductions

- Reduces ecotoxicity in soil and water
- Prevents loss of biodiversity
- Reduces environmental harm to human communities



Prescribed Grazing

- Concentrates movement and matches livestock grazing periods to plant growth cycles, leading to improved soil and plant health and overall biodiversity
- Can be used to re-balance and encourage growth of desirable plant communities, minimizing soil erosion while reducing the presence of invasive plants and fuel loading
- Key practice for landscape management, particularly in difficult terrain and across large areas which evolved to support large herbivores
- Restores habitat in localized biodiversity hot spots



Cover Crop

- Covers the soil between annual crops, reducing soil erosion and compaction, leading to improved soil health and water retention, while giving important off-season pollinator habitat
- Acts as natural weed suppressant, minimizing the need for herbicides
- Returns essential nutrients to the soil in between crop cycles, minimizing the need for fertilizer so fewer toxins leach into the soil and water

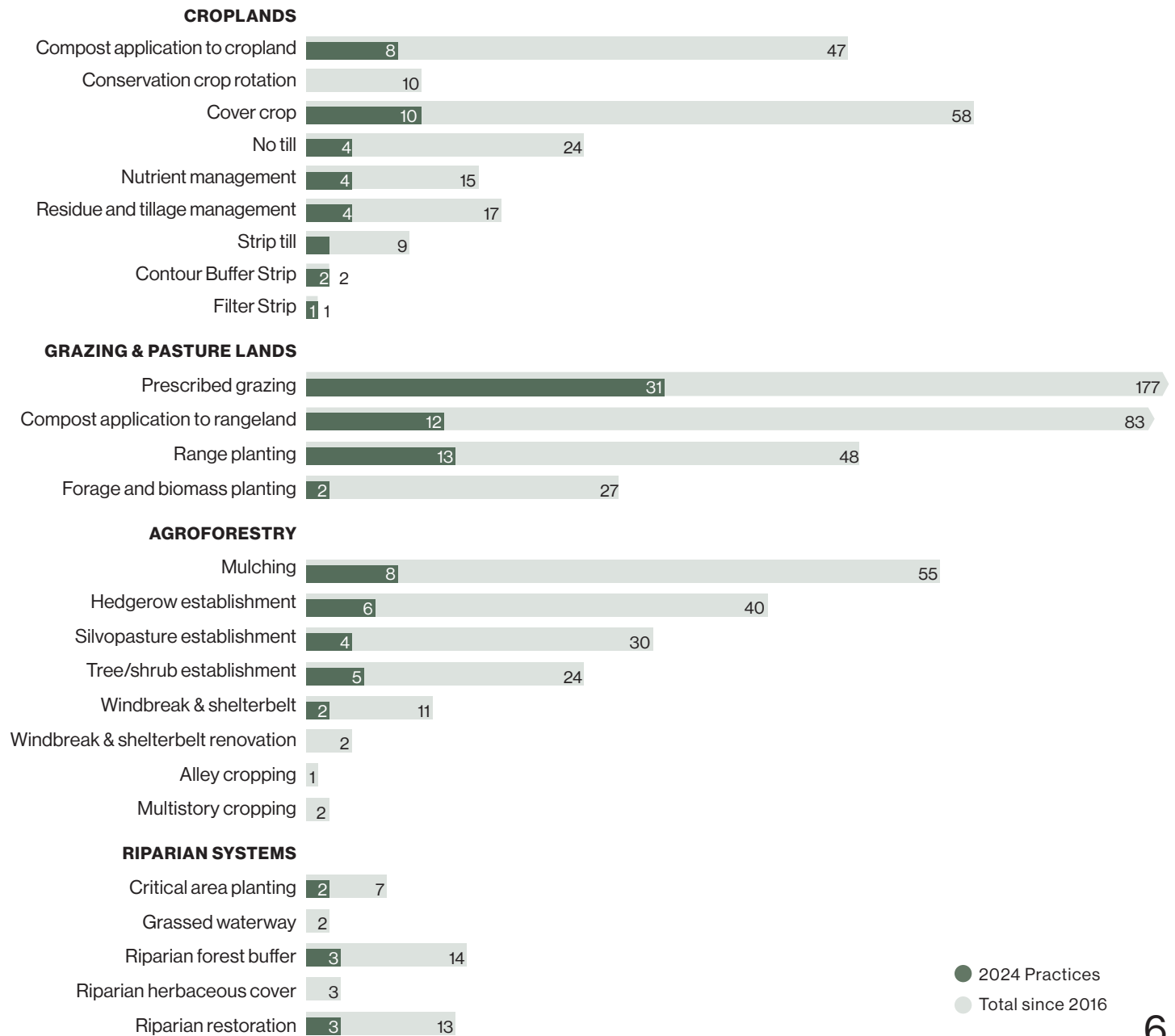


Integrated Crop and Livestock Management

- Recycles energy and nutrients, which minimizes the inputs and outputs within an agricultural system, leading to reduced eco toxicity and emissions
- Supports multiple uses for the same land, increasing the resilience of individual farming operations
- Increases labor efficiency and overall crop production



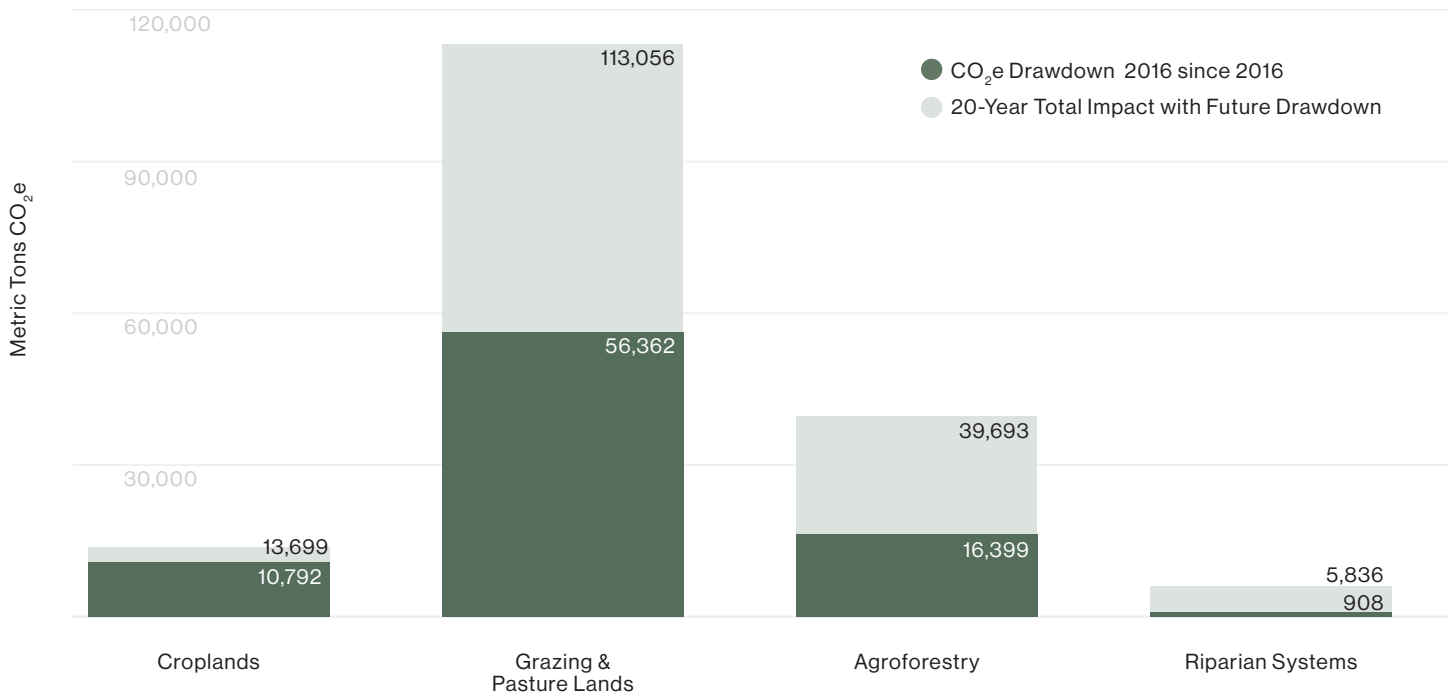
Carbon Farming Practices Implemented, 2024 and Cumulative





Carbon Farming Practices, CO₂e Drawdown by Category

Cumulative since 2016 and Projected 20-Year Impact

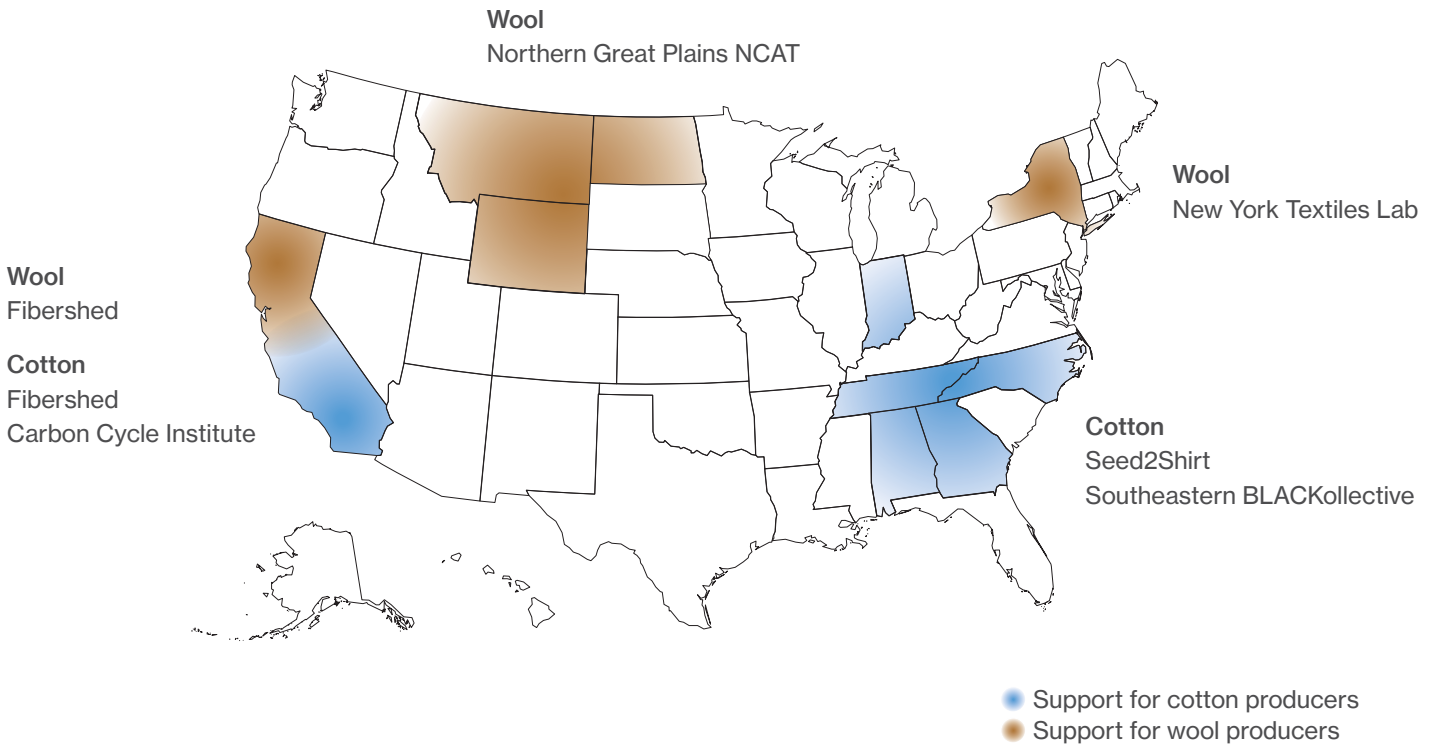


2024 Overview

In 2024, producers enrolled in the Climate Beneficial™ Program collectively implemented a total of 126 carbon farming practices, accounting for an estimated 5,516 Mg of CO₂e sequestered and 41,590 Mg CO₂e drawdown projected over the next 20 years.

Prescribed grazing, range planting, compost application to rangelands, and cover cropping were the most commonly implemented practices. Over the life of the Climate Beneficial™ Program since 2016, compost application on rangeland accounts for the highest amount of carbon drawdown, sequestering over 78,000 Mg CO₂e over a 20 year time frame.

USDA Climate-Smart Commodities Grant



Fibershed and five project partners were awarded a Partnerships for Climate-Smart Commodities grant through the USDA's historic investment in expanding climate-smart agriculture.

The partnership is supporting the expansion of Climate Beneficial™ wool and cotton production on at least 100 farms and ranches spread across 2 million acres in 10 states.

Almost \$18 million will be invested directly in land stewardship practices for wool and cotton producers across California, Montana, New York, South Dakota, Wyoming, Alabama Georgia, Indiana, North Carolina, and Tennessee to adopt practices with quantifiable greenhouse gas benefits. In addition to funding conservation practices, the grant is also expanding Carbon Farm Planning in these states and providing enrolled producers with Carbon Farm Plans.

The partnership is also supporting the expansion of Fibershed's Climate Beneficial™ Verification and market development and brand partnerships for Climate Beneficial™ fibers. Development of a Carbon Farm Planning and Verification Platform that will streamline climate-smart agriculture planning and verification for producers, verifiers, and supply-chain stakeholders alike.

In 2024 we finalized our enrollment process and enrolled 38 producers in the program, collectively stewarding over 360,000 acres. Conservation Planners in each of these regions are currently working with these producers to write Carbon Farm Plans, which will identify all opportunities for carbon capture on these land bases. Producers in the Northern Great Plains have been the first to begin practice implementation, and the project lead NCAT has already distributed almost \$180k to producers, primarily for cover cropping and no-till.

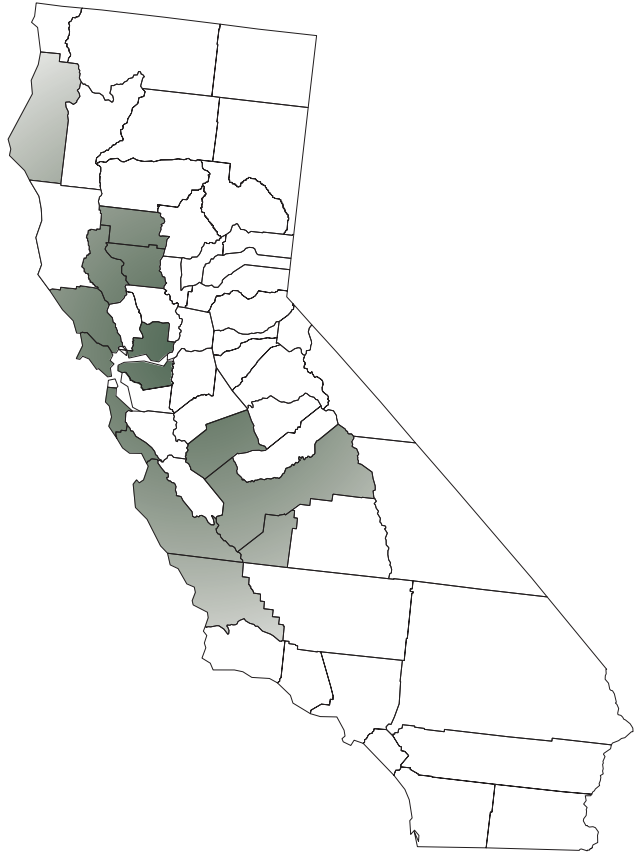
Producers by Region

Region	Producers Enrolled	Acreage
California	9	64,436
Northern Great Plains	17	296,394
New York	6	577
Southeast	6	1587
Total	38	362,994

CDFA Healthy Soils Program Block Grant

In 2024, Fibershed worked with local Resource Conservation Districts and other regional partners to enroll 33 producers in the Healthy Soils Program. Through this program, growers will receive \$2.75 million of cost-share reimbursements for implementing 15 different conservation practices on their land, which include compost application, hedgerow planting, riparian and range plantings, and cover cropping.

These practices will be implemented over the next three years on 4,214 acres throughout the state, resulting in enhanced biodiversity, improved soil health and a reduction in CO₂ emissions by over 7,964 metric tons annually.



33

producers

4,214

acres

in Alameda, Colusa, Fresno, Glenn, Humboldt, Kings, Lake, Marin, Merced, Monterey, San Luis Obispo, San Mateo, Santa Cruz, Solano, and Sonoma counties

Carbon Farm Seed Fund

Our Carbon Farm Seed Fund was created to directly assist producers enrolled in the Climate Beneficial™ Program to implement carbon farming practices. In our 2023–2024 round we awarded more than \$47,000 to 10 carbon farming projects on 445 acres, which we estimate will draw down over 1,434 Mg CO₂e over the next 20 years.

	2023–2024	Cumulative since 2020
Amount Awarded	\$47,577	\$294,083
Number of Projects	10	71
Project Acreage	445	2,221
20-year CO₂e Drawdown	1,434 Mg	13,345 Mg



“We are still scattering compost; we’ve found our hay yields and water holding improve significantly after one application. Thanks to Fibershed, we’ve added a hedgerow of native plants and silvopasture, white oaks on the permanent sheep field to provide sheep shade and acorns, which are a good food source for sheep. We hope to create a seed bank.”

HAZEL FLETT, BODEGA PASTURES
CARBON FARM SEED FUND GRANTEE



“We’re so grateful to have had the opportunity to participate in the [...] grant program. Our sheep had only ever had unlimited access to our land because we couldn’t afford the fencing. We would not have been able to embark on our rotational grazing journey without your help!”

HEIRLOOM EAST BAY
CARBON FARM SEED FUND GRANTEE



Climate Beneficial™

VERIFIED

The Climate Beneficial™ program provides growers planning, funding and technical assistance to adopt practices that lead to improved soil health, carbon sequestration, biodiversity enhancement, watershed health, and community resilience. Through whole-farm planning, collaboration with CBV and regional Technical Assistance Providers (TAPs), growers select practices that maximize holistic impact, aligning with their unique landscapes.

Producers start with a Resilient Ranch Plan or Carbon Farm Plan, developed with guidance from the Carbon Cycle Institute and regional technical assistance providers to identify key opportunities for Climate Beneficial™ practices. Growers implement and monitor these practices, conducting annual soil tests and tracking greenhouse gas reductions with COMET planner and or localized peer reviewed data. The Climate Beneficial™ Verified team verifies outcomes and shares data with purchasing partners. Pricing in CBV ensures fair compensation, passing 100% of the premium directly to growers to sustain their practices.

The CBV Outcomes Framework was developed in 2024 to track a broad set of environmental and social outcomes across key impact areas, providing growers with a guided approach for achieving holistic, measurable results.

Holistic Outcomes Framework

Climate Beneficial™ Verified is designed to support growers to achieve a holistic suite of outcomes across environmental and social categories. In order to achieve this, practices are mapped against impact categories to guide the selection of practices, and outcome metrics are tracked across the impact categories. The following categories and associated goals are referred to as the CBV Outcomes Framework.

Soils	Soil health is improved	Chemical Balance, Structural health, Biological health
	Soil carbon stock is increased	Carbon Cycling, Microbial health
Watersheds	Water use efficiency is increased	Soil Water Cycling, Water Consumption
	Water pollution is reduced	Eutrophication, Sedimentation
Ecosystem Health + Biodiversity	Biological diversity increased	Native plants, Crop diversity, Wildlife diversity, Insects / pollinators
	Habitat preservation improved	Habitat support features, Habitat Preservation
Overall Ecosystem Health	Toxicity load is reduced	Herbicides, Pesticides / Insecticides, Fertilizers
	Reliance on fossil fuels reduced	Fossil Fuel reliance (inputs), Fossil Fuel reliance (energy/fuel)
	Other greenhouse gas emissions are reduced	Nitrogen emissions, Methane emissions

Healthier Ecosystems

Each practice is mapped against the CBV outcome categories in order to support growers in an implementation strategy that will allow them to achieve holistic outcomes. Compared to conventional cotton production in the region Climate Beneficial™ achieves:

- 40% reduction in synthetic pesticides
- 72% improvement in soil organic carbon (measure of sequestration)
- 26% reduction in synthetic nitrogen (fertilizer)
- 739 acres of grower managed wetland habitat
- Full elimination of WHO 1a highly hazardous chemistry, glyphosate, & fungicides.

This data is based on CA farmer impact data from 2021-23. Pesticide reductions are measured by the volume of active ingredients and include insecticides, generic pesticides, and herbicides. Conventional adjacent fields are used as a baseline except for SOC measurements which average SOC improvements from the same field pre-implementation (2 harvests) and adjacent conventional fields.

California Cotton LCA

The goal of the Climate Beneficial™ Verified California Cotton Life Cycle Assessment (LCA) is to quantify the absolute and relative environmental impacts of Climate Beneficial™ and Conventional Cotton production.

Preliminary results of the LCA indicate that, if carbon sequestration is successfully maintained, Climate Beneficial™ Cotton achieves net negative emissions when accounting for soil carbon drawdown, with an approximate value of -1.56 kg CO₂ per kg of fiber, compared to conventional.

This comparative life cycle assessment, conducted in accordance with ISO 14044 and ISO 14067 standards, provides a holistic view of how various cotton production methods compare in terms of their overall environmental footprint.

2024

Develop and define CBV framework

2025

Operationalizing new framework and initial pilot

2026

Full adoption of CBV for new and historical producers



“People need to care and this work *requires* one to care. It starts with the self and ripples out to family [and] community. This is a pathway to jobs that make *better people*. **Everything I do at this point is to support the notion, or significance, of supporting a culture of care, of individuals caring about the things around themselves.** And there is nothing that has [...] helped me have the deepening of care more than working with animals, with sheep and goats on the land.

It is a form of personal transformation that I can now share with others from non-agriculture backgrounds. Teamwork, life and death, pushing limits in your mind, endurance. We are so much like the animals we work with. We are all just trying to get along and endure in the elements.”

BRITTANY COLE BUSH
FOUNDER, SHEPHERDESS LAND & LIVESTOCK
AND GRAZING SCHOOL OF THE WEST

Thank You

Thank you to all the producers in our Climate Beneficial™ Program for your land stewardship this year! Your carbon farming practices reflect a generosity for the earth – a kindness towards soil, water, and future generations.



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