Sonoma County Carbon Sequestration through Compost Application: Case Study #4 - Row Crop (No Till / Shallow Tillage)

Report prepared by Ava Faithe Castro of Daily Acts Organization

---

Sonoma County - Row Crop Application with No Till / Shallow Tillage

Project Site: Radical Family Farms - Sebastopol, CA.
Project Lead: Sonoma RCD

GRANT SUMMARY

The Carbon Sequestration through Compost Application Pilot Project, funded through Sonoma County's Climate Resiliency Fund, sought to maximize carbon drawdown within both agricultural and community settings. In 2023, through this project, a compost rebate was created which incentivized agriculturalists to spread compost at their sites, helping to meet the goals of the Short-Lived Climate Pollutants Act (SB1383). Compost was also spread at community sites and communities engaged through educational workshops and programming on the topics of compost, food waste reduction, and soil health.

SITE CRITERIA

Eligibility for agricultural sites had to meet the following criteria:

- Legitimate agricultural enterprise
- Has the ability to implement the practice (spread rebated compost in the given time frame)
- Gave permission for the grant partners to enter project information into the project tracker.

Agricultural sites who applied were prioritized based upon:

- An in process or developed Carbon Farm Plan (or implementing carbon farming practices)
- If they are a part of, or serve, underserved communities
- Support community education, habitat, and/or water conservation activity on their site.
- A high carbon sequestration amount per cost of application (ROI)
- If they are a small farm
- If they have not previously received financial support from the RCD

SITE BACKGROUND

Nestled in the fertile lands of Sebastopol lies a vibrant three-acre local produce farm that serves as a beacon of sustainable agriculture and cultural preservation. Rooted in the rich tapestry of mixed Asian American heritage and culinary traditions, this farm is dedicated to cultivating a diverse array of herbs and vegetables. Embracing environmentally conscious practices, the farm operates as a no-spray, chemical-free, low-till, regenerative oasis, prioritizing soil health and biodiversity. With a steadfast commitment to food accessibility, the farm warmly welcomes all, accepting EBT payments to ensure that nutritious, locally grown produce is available to everyone in the community.

Distinguished for their dedication to quality and authenticity, this farm has forged meaningful partnerships with local chefs and restaurants, supplying them with an abundance of fresh, flavorful ingredients. Additionally, the farm brings its bounty directly to the community through participation

in farmers markets, fostering connections between consumers and the land. Through their tireless efforts, this local produce farm not only nourishes bodies but also cultivates a deeper appreciation for the interconnectedness of culture, sustainability, and food.

PROJECT SUMMARY

In an exemplary demonstration of sustainable farming practices, the local produce farm meticulously spread 138 tons of compost across 1.5 acres of their land. With a keen eye on both environmental stewardship and soil health, the farm invested $4,765.24 in procuring the compost, a cost significantly offset by the RCD's compost rebate totaling $4,050.45. Employing efficient methods, the compost was evenly distributed onto the row crops using a tractor equipped with a specialized compost spreader attachment.

PROJECT METRICS

Total Size of Farm/Landscape (acres)	3 acres
Area of Compost Applied (acres)	1.5 acres
Amount of Compost Applied (tons)	138
Spreading Method	Tractor with compost spreader attachment
Cost of Compost	$4,765.24
Amount Rebated	$4,050.45
Years of Benefit	2
Total Sequestration Benefit	184.14 Mg CO_2e

RESULTS

The results of this compost application have yielded remarkable environmental benefits and tangible contributions to soil health. The spreading of compost amounts to an impressive sequestration benefit equivalent to 184.14 Mg CO_2e. This achievement is illustrated vividly by comparisons: it matches the greenhouse gas emissions from 470,000 miles driven by an average gasoline-powered vehicle and equals the CO_2 emissions from burning one railcar's worth of coal. Moreover, this compost application has a significant ecological impact, equivalent to the carbon sequestration of 215 acres of US forests in a single year. Beyond its sequestration benefits, the project has also bolstered soil health and water retention. (according to calculations using EPA's greenhouse gas equivalencies calculator)[1].

[1] United States EPA Greenhouse Gas Equivalencies Calculator - epa.gov/energy/greenhouse-gas-equivalencies-calculator