

Sonoma County Carbon Sequestration through Compost

Application: Case Study #2 - Rangeland

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Sonoma County - Rangeland Application

Project Site: Bodega Pastures - Bodega, CA. - Salmon Creek Watershed

Project Lead: Gold Ridge 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

Bodega Pastures is a 1,000 acre sheep ranch located on Coast Miwok territory in Bodega, California. Bodega Pastures, being situated on a beautiful coastal prairie ecosystem, practices and values organic and humane ranch management. The area is held in conservation by the Bodega Land Trust, which helps to protect and preserve the land. The herds consist of multiple breeds including Corriedale, Romney, Suffolk, Navajo-Churro, and Dorper. The sheep rotationally graze the land accompanied by guard donkeys. By having the herds graze rotationally, Bodega Pastures is cultivating regenerative land management that aligns with carbon farm practices and ideology. Bodega Pastures provides sustainable meat and wool products to the local community.

PROJECT SUMMARY

Bodega Pastures has a carbon farm plan that outlines practices they could implement to help reduce GHGs or increase carbon sequestration. In an ongoing effort of Bodega Pastures in partnership with Gold Ridge RCD and various funders, they have implemented several prioritized practices. Through the Compost Application Pilot Project Bodega Pastures applied 180 tons of compost across 11 acres on their land. The purpose of this compost application was to improve soil health of the rangeland and aid in the sequestration of atmospheric carbon. The spreading was completed using a truck equipped with a compost spreader attachment. Bodega Pastures was reimbursed \$8,925 for the compost. The RCD rebate was able to cover 85% of the cost of this project, which fiscally helped the land stewards.

PROJECT METRICS

Total Size of Farm/Landscape (acres)	~1000 (two parcels)
Area of Compost Applied (acres)	11
Amount of Compost Applied (tons)	180
Spreading Method	Truck with compost spreader
Cost of Compost	\$10,500
Amount Rebated	\$8,925
Years of Benefit	15
One Year Sequestration Benefit	120.1Mg CO ₂ e
15 year Sequestration Benefit	245.85 Mg CO ₂ e
Total Sequestration Benefit	365.95 Mg CO ₂ e

RESULTS

This compost application helped to increase the soil health, subsequently helping to sequester about 395.85 Mg CO₂e over 15 years. Rangelands, unlike row crops or vineyards, can sequester additional carbon dioxide in response to a single compost application for up to 15 years due to the management practices typically associated with them. Rangelands are not tilled; which which supports their capacity to act as a carbon sink.

The amount of carbon dioxide equivalent sequestered from this application is comparable to the CO₂ emissions of 44,543 gallons of gasoline consumed or 5.2 tanker trucks worth of gasoline. It is also equivalent to the CO₂ emissions of 51 homes' energy use for one year. Lastly, this compost application is also the equivalent to the amount of CO₂ sequestered by 6,545 tree seedlings grown for 10 years or 462 acres of US forests in 1 year. (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](https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator)

PHOTOS



Before Compost Application



After Compost Application

