

Sonoma County Carbon Sequestration through Compost

Application: Case Study #5 - Community Projects

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Sonoma County - Community Education and Community Site Application

Project Sites: Sonoma Garden Park, Petaluma Bounty, Bayer Farm, City of Cloverdale, Ceres Project Sebastopol Garden

Project Lead: Daily Acts

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 BACKGROUND

One community site, as in a community garden or park, was selected in each of the 5 districts in Sonoma County for these projects. Sites were selected based upon their interest in receiving and spreading compost, ability to have volunteers spread the compost, and ability to host and co-facilitate an educational compost event on site. Each site was unique and served a different subcommunity of Sonoma County.

Sonoma Garden Park - Sonoma Creek Watershed (District 1)

The 6 acre community agricultural park, owned by the City of Sonoma and operated by the Sonoma Ecology Center, is a beautiful space for the community to learn and enjoy recreationally. The park offers winding paths through the garden and serves as a demonstration of sustainable and regenerative land management practices such as rainwater harvesting, greywater systems, and pollinator corridors. The success of the garden is attributed to the many volunteers and youth interns who work on the site. The garden is home to chickens, a children's play area, a native plant nursery, community garden plots, and a weekly harvest market.

Petaluma Bounty - Petaluma River Watershed (District 2):

This 3 acre community centered farm is located in an urban setting a short walk from downtown Petaluma. The farm cultivates about 12,000 pounds of fruits and vegetables annually. The farm produces mixed vegetables, fruits, herbs, flowers, and even houses numerous bee boxes. The majority of this produce goes to low income families and seniors.

Surrounded by 4 affordable housing sites Petaluma Bounty is not only able to grow food by and for the community, but also able to be a hub and heart of activities. Their programs include regular workshops, volunteer days, nutrition education, field trips, service learning opportunities, and a farm stand.

Bayer Farm - Laguna de Santa Rosa Watershed (District 3)

Bayer Farm, operated by LandPaths, is a 2 acre community space that is full of abundance. Serving the Santa Rosa community, and more specifically Roseland and much of the surrounding Spanish speaking community, Bayer Farm strives to connect the community with the concept of farming for health. This culturally rich space has a large volunteer base and many community garden plots. They host free workshops of a variety of topics and have a focus on herbal medicinal teachings.

City of Cloverdale - Alexander Valley Watershed (District 4)

Sitting at the county's northernmost border sits the City of Cloverdale, a beautiful community rich in culture and history. Cloverdale is home to 500 acres of park lands and open spaces. Even though the City of Cloverdale is located farther north from the other major cities in the county, it remains a vibrant hub for community-oriented programs and events. The city is committed to making strides in environmental protections and engaging the community on those fronts.

Ceres Project Sebastopol Garden - Atascadero Green Valley Watershed (District 5)

Ceres Project is a nonprofit with the mission of nourishing communities and empowering teens. Ceres Project provides delicious and medicinally tailored meals made for those facing serious illnesses such as cancer or diabetes. They Mentor teens to learn about growing, cooking, and eating healthy foods. The meals are 100% organic and locally sourced, which includes food from their gardens.

PROJECT SUMMARY ¹

Daily Acts partnered with the previously listed community sites to bring a series of educational compost events throughout 2023. These events were open to the general public and the number of attendees ranged from 25 - 150 per event. Each site had 1 event associated with them, outside of Petaluma Bounty who had 3. Each event, though all on the topics of compost, carbon cycle, food waste reduction, soil health, and SB 1383, had elements unique to them.

Sonoma Ecology Center had a focus on how to troubleshoot issues one might face with their at home compost pile, as well as a discussion on biochar and bokashi. That event was followed by a tour of the site. Petaluma Bounty was a garden discussion on using and making compost with Master Gardener and Composter, Lori Caldwell of StopWaste Alameda. Petaluma Bounty also co-facilitated a field trip for students of Penngrove Elementary to learn about composting. The City of Cloverdale was only a compost giveaway and tabling event where organic conversations and connections were made on the themes of soil health and gardening. Lastly, the event with Ceres Project had a focus on food waste and vermicompost (worm composting).

The majority of these events were followed with a compost giveaway for attendees and other members of the public to grab up to 1 yard of free organic compost.

All the sites had an element of compost spreading completed after the events (with the exception of Cloverdale, as compost was distributed to the community in the form of a compost giveaway but not spread on any public, community location).

¹ A more in depth description and narrative with photos for each event can be found at <https://dailyacts.org/projects/> under the category of "Soil Health."

PROJECT METRICS

Amount of Compost Applied (yards - tons)	150 yards - 90 tons
Amount of Compost Given Away to Community (yards - tons)	170 yards - 102 tons
Total Compost Distributed (yards - tons)	320 yards - 192 tons
Approximate Acres of Compost Spread (acres)	13.5
Number of Attendees	380
Amount of Carbon Sequestered at public sites and at residential homes (MgCO ₂ e)	128 Mg CO ₂ e

RESULTS

The 7 events that occurred yielded in over 380 people in attendance and educated on the topics of compost use and creation, SB 1383, food waste reduction, carbon cycle, and soil health. Many participants left with compost and countertop compost bins (and a vermicompost/worm bin from the Ceres Project event).

192 tons, or 320 yards, of compost was distributed. The application of compost on these community sites and at people's private residences equates to about 160 Mg CO₂e (Carbon Dioxide equivalent in metric tonnes) and an increase in water holding capacity of the soil by 135,498 gallons.

These educational programs and compost application to community sites had many benefits in terms of environmental impact. It can be seen in the data that the spreading and distribution of compost yielded great successes in terms of increased soil health and CO₂ sequestration.

Through the application of compost across the sites, soil health increased greatly, subsequently helping to sequester 128 MgCO₂e. This amount of carbon dioxide equivalency approximately equates to the emissions of over 320,000 miles driven by an average gas powered vehicle or 14,000 gallons of gasoline consumed. It is also the equivalent of CO₂ sequestered by 2,100 tree seedlings grown for 10 years or 150 acres of US forests in one year (according to calculations using the EPA's greenhouse gas equivalencies calculator)².

When the data collected from the compost application on community sites are compared to that of the agricultural applications, the MgCO₂e is less than many of the sites, specifically rangelands; as most agricultural operations spread across dozens of acres in one given time whereas the community sites spread on 1-3 acre operations for a total of 13.5 acres. However, the benefits of these community projects go far beyond the quantitative data listed. Unquantifiable but incredibly significant benefits from the educational community events included: the value of increased awareness on the education topics, increased usage and proper utilization of municipal green bins, food waste reduction through education, amount of individuals who started or improved an at home compost bin, avoided food miles, methane reduction through organic waste diversion, and participants' paradigm shift and new connections to the carbon cycle.

² United States EPA Greenhouse Gas Equivalencies Calculator - [epa.gov/energy/greenhouse-gas-equivalencies-calculator](https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator)

PHOTOS



TESTIMONIALS

“I am writing to express my gratitude for the compost on Earth Day, yesterday. It was an enormous heap of black, fragrant goodness. The people who were there, directing traffic and helping out, were so kind. There were people with pickup trucks, and a woman with a kid and a shopping cart and a plastic bag - all great. So thank you, it was awesome.” ~Kristen Sullivan, District 4 event participant.

“The kids were so happy on the bus ride home and are stoked on their green waste bins. I think overall it went amazing!”
~ Amy Ortiz, Penngrove Elementary Garden Coordinator, co-facilitator of 4th grade compost field trip to Petaluma Bounty

