

Cleaner Air Partnership Technical Advisory Committee

Tuesday June 28th, 2022 11:30 AM - 1:00 PM

Carbon Farming as an Emerging Strategy in Greenhouse Gas Emissions Reductions

Meeting Minutes

1. Carbon Farming Experts:

- Todd Smith, Planning Director, County of Sacramento.
- Majdi Abou Najm, Associate Professor of Soil Biophysics, UC Davis.
- Campbell Ingram, Executive Officer, Sacramento-San Joaquin Delta Conservancy.
- Humberto Izquierdo, Agriculture Commissioner, Yolo County.
- Kate Reza, Program Manager, Yolo County Resource Conservation District.

2. Key Takeaways:

Sacramento County:

- Sacramento County collaborates with various partners to promote and increase carbon sequestration opportunities on Agricultural lands, which are all documented in the Sacramento County Climate Action Plan, currently under draft.
 - Current partners: local landowners, ranchers, land managers, and resource conservation districts.
 - These carbon sequestration opportunities are intended to offset carbon emissions on site, on Agricultural lands.
 - Carbon sequestration or Carbon Farming practices include low tilling and compost applications, which increase soil health.
 - Sacramento County has identified potential partners to work on carbon sequestration strategies such as the California Department

of Agriculture through their programs and the UC Davis Agricultural Department.

- Agricultural lands are important not only for farmers and the agricultural industry, but also for the greater Sacramento region in meeting clean air and climate goals; carbon farming is an emerging strategy in addressing agricultural and climate resiliency.

Yolo County:

- Yolo County's Climate Action Plan is still in its development phase.
- The county is promoting a Climate Action Committee with their planning department, in partnership with Sacramento County to do something similar to their plan.
- While there are formal attempts to do carbon farming, there is still work to be done in order to have a more quantifiable way to measure carbon sequestration through its practices at the county and regional level.

Yolo County Resource Conservation District:

- What is the definition of Carbon Farming?
 - It is a whole-farm approach, which is a comprehensive decision-making approach of optimizing carbon capture on working landscapes, efficiently using natural resources, and emphasizing sustainable agriculture.
 - The USDA's National Resources Conservation Service (NRCS) approved practices known to increase carbon capture on lands such as mulching, grass waterways, hedgerows, alley cropping, prescribed grazing and nutrient management through replacing chemical fertilizers with natural soil amendments.
 - The strategy is to look at the whole farm and its operations, and decide on what practices will sequester carbon in plant and tree material or in the soil.
- How is the Yolo County Resource Conservation District (Yolo County RCD) able to do the work?
 - The Center for Land-Based Learning, a partner of the Yolo County RCD, received Early Action Funds from the County of Yolo through the Climate Action Committee, to do three tasks:
 - implement three carbon farming plans

- facilitate workshops and
 - provide outreach to farmers on carbon farming 101 and training.
- The Yolo County RCD has also been involved in prescribed grazing in the Yolo Bypass, and for many years, has been involved with re-vegetation, native plant restoration and hedgerow implementation on farm engines.
 - There are multiple co-benefits of carbon sequestration, such as habitat for wildlife and water filtration, adding to the creation of sustainable operations on farm lands.

Sacramento-San Joaquin Delta Conservancy:

- The agency is primarily focused on *avoided carbon emissions*, on a relatively small area of the Delta.
 - This small area is a deeply subsided portion of the Delta, 20 to 30 feet below sea level and approximately 150,000 to 200,000 acres of land.
 - This hole in the ground is all carbon that has vaporized into the atmosphere, as a result of draining the soils there and planting agriculture in its place.
- The agency has been exploring ways to encourage farmers in changing their practices through economic incentives to stop subsidence and avoid further carbon emissions.
 - The approved protocol allows farmers to change their practices and is economically viable.
 - The solution to the subsidence is to re-wet/re-saturate the subsided wetland and as a result, this protocol prevents microbial oxidation and stops carbon emissions, which both threaten the biodiversity of the Delta.
 - This protocol allows us to quantify the avoided emissions, certify carbon credits and take them to the voluntary market to get an actual sale from the carbon credits that have been certified.
 - There are a number of pilot projects underway, with carbon credits getting certified, all led by the Delta Conservancy.

UC Davis Soil Biophysics Department:

- The European Commission defines carbon farming as farm management practices aimed at delivering climate mitigation in agriculture, with any

form of farm management that aids in capturing and storing a greater amount of carbon in soil.

- We lose a ton of carbon to wildfires every year and working on developing a circular economy around healthy soils and healthy forests presents economic value to our region.
- How does the department engage with carbon farming in the region?
 - UC Davis has the Working Land Innovation Center where various alternatives to chemical fertilizers, such as soil amendments and soil management practices, are being tested to determine whether they are effective in sequestering carbon.
 - The center is working with a group of students and scientists to develop a full-life cycle to determine the full net benefit of these alternatives in carbon capture.
 - They're looking at the overall land more so than just the soil.

3. Additional Questions and Discussion Topics:

- *Do carbon farming practices capture more, capture less or capture the same amount of carbon than other standard farming methods?*
 - **The CARB Scoping Plan of 2022** does a great job of mapping out the various existing carbon sequestration mechanisms in the region.
 - It is worth noting that these different mechanisms emit varying amounts of carbon due to their capacities, and the storage capacities of these mechanisms are measured in percentages.
 - **The Carbon Cycle Institute** offers county and region level guidance on looking at carbon sequestration rates and understanding the numbers.
 - **Sacramento County Climate Plan (Appendix E: GHG Inventory, Forecasting and Targets)** provides detail on the evaluation of historic and forecast GHG emissions communitywide and from government operations.
- *Does drought affect working lands and carbon sequestration practices?*
 - The bottom line approach to carbon sequestration practices, for example, in places like the Delta, is to “spongify” or re-saturate these lands via carbon farming practices such as rice cultivation as an alternative, in order to capture and store carbon.

- Manure management is part of these practices, with some carbon farming practices creating some methane emissions.
 - Different management processes emit varying amounts of methane.
 - The overall whole-farm approach looks at methane emission in relation to carbon sequestration and compares the impacts of these two types of emissions.

- Pertaining to GHG reduction targets in the Sacramento County Climate Action Plan, are we relying on offsets of carbon emissions only, or are we looking at changes that ultimately create a net benefit where the various numbers add up to the total reduction targets?
 - The metric used in the Climate Action Plan is a standalone measure and is not explicitly characterized as an offset of carbon emissions, for other projects.
 - The goal is to get traditional farm practices changed on working lands, while looking at the various sources of carbon emitting mechanisms.

4. Additional resources:

- Carbon Cycle Institute: <https://www.carboncycle.org/what-is-carbon-farming/>
- Sac County Climate Action Plan: <https://planning.saccounty.net/PlansandProjectsIn-Progress/Pages/CAP.aspx>
- CARB Scoping Plan 2022 (under draft): <https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents>
- COMET-Farm: <http://comet-farm.com/>