



CCOF

Organic Certification

Education & Outreach

Political Advocacy

Promotion

California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: Cap-and-Trade Auction Proceeds Draft Third Investment Plan: Fiscal Years 2019-20 through 2021-22

Sept. 13, 2018

Dear Air Resources Board Staff:

CCOF advances organic agriculture for a healthy world. We advocate on behalf of our members for organic policies, support the growth of organic through education and grants, and provide organic certification services.

As the Air Resources Board considers how best to invest California's cap and trade auction proceeds, CCOF advocates greater investment in these Climate Smart Agriculture programs: Healthy Soils, State Water Efficiency Enhancement, and Alternative Manure Management.

We also encourage ARB to invest in a new program that helps conventional farmers convert to certified organic production because investing in organic farming will reduce CO₂ equivalents from every acre farmed using organic methods.

[Organic Farming Sequesters Carbon, Improves Soil Quality, and Is a Net Sink for Greenhouse Gases](#)

AB 398 lists "Sustainable agricultural practices that promote the transition to clean technology, water efficiency, and improved air quality" as one of the California legislature's priorities for auction proceed investments. Organic farming fits this bill.

Numerous agricultural practices have proven climate benefits, including crop rotation to reduce need for pesticides, build soil organic matter, and sequester carbon; on-farm composting; and using biologically-based fertility inputs. Certified organic farming integrates these practices into a verifiable and federally-enforced set of production standards.

A long-term study at the UC Davis Russell Ranch Sustainable Agriculture Facility shows that, after 20 years

- Significantly more carbon was sequestered in the soil under organic management than any other system.

- Soil water infiltration rates and aggregate stability were greater in organic than conventional plots.
- Microbial biomass was 40% higher in organic soils than conventionally managed soils.
- Organic tomato yields under furrow irrigation were not significantly different from conventional (Wolf et al. 2017).

A modeling study that was calibrated using the UC Davis data showed that organic plots were a net sink for greenhouse gases, with -3,496 kg CO₂ eq ha⁻¹ yr⁻¹ in emissions from organic plots subject to standard tillage and -3,349 kg CO₂ eq ha⁻¹ yr⁻¹ in emissions from organic plots subject to conservation tillage (Table 5, De Gryze et al. 2010). In contrast, the net emissions for conventionally managed plots were a net source of GHG, averaging 1,081 kg CO₂ eq ha⁻¹ yr⁻¹ under standard tillage and 1,182 kg CO₂ eq ha⁻¹ yr⁻¹ under conservation tillage (De Gryze et al. 2010).

These data show that organic farming practices sequester carbon in soils, even with standard tillage.

This is because organic farmers use soil-building practices and biologically-based fertility inputs, such as composted plant and animal wastes, incorporated cover crops (green manures), animal byproducts like bone and feather meal, and fish extracts. Biologically-derived inputs feed soil microbiota as well as the crop, unlike many synthetic fertilizers that can damage soil microbes and negatively impact soil's ability to cycle nutrients, water, and hold carbon.

[Organic Farming is a Solution to Overuse of Synthetic Fertilizers in California](#)

Synthetic fertilizer use in California pollutes water and air and contributes to the following environmental and human health problems:

Nitrate Contamination of Drinking Water Supplies

The UC Davis report commissioned by the California legislature showed widespread nitrate aquifer contamination in the Tulare Lake Basin and Salinas Valley, largely from fertilizers and animal wastes applied to cropland (Harter et al. 2012). Nitrates threaten drinking water quality for 2.6 million people in these regions of the state alone (Harter et al. 2012).

Particle and Ozone Pollution in the Air

Earlier this year, a UC Davis study demonstrated that "agricultural soils are a dominant source of NO_x pollution in California, with especially high soil NO_x emissions from the state's Central Valley region" (Almaraz et al. 2018). NO_x emissions react with other atmospheric compounds to form particle pollution and ozone, which contribute to asthma and other respiratory problems in humans (EPA ND accessed 9/12/18).

The American Lung Association's State of the Air 2018 report shows that California metropolitan areas are the top 7 in the United States most polluted with ozone, with 5 of these regions located in areas with high agricultural activity: Bakersfield (#2), Visalia-Porterville-Hanford (#3), Fresno-Madera (#4), Sacramento-Roseville (#5), and Modesto-Merced (#7). These regions rank highest in the nation for shorter-term and year-round particle pollution as well.

N₂O Increase in the Atmosphere

Nitrous oxide (N₂O) is the most potent greenhouse gas, having 298 times the global warming potential of CO₂. Researchers at UC Berkeley used isotope analysis of Antarctica air samples to demonstrate that the contemporary increase in atmospheric N₂O is “largely the result of an increased reliance on nitrogen-based fertilizers” (Park et al. 2012).

The Air Resources Board could help mitigate these problems by investing in a program that helps conventional farms convert to organic farming. Certified organic farmers are regulated under federal law. They submit an organic system plan every year to an accredited certifier that lists all inputs they plan to use. They are required to document all input applications including timing, rate, and material applied. Every certified organic operation undergoes at least one annual inspection to verify that they are adhering to the organic standards.

Under federal law, organic farmers must

- “select and implement tillage and cultivation practices that maintain or improve the physical, chemical, and biological condition of soil and minimize soil erosion” (7 CFR §205.203 (a)).
- “manage crop nutrients and soil fertility through rotations, cover crops, and the application of plant and animal materials” (7 CFR §205.203 (b)).
- “manage plant and animal materials to maintain or improve soil organic matter content in a manner that does not contribute to contamination of crops, soil, or water by plant nutrients, pathogenic organisms, heavy metals, or residues of prohibited substances” (7 CFR §205.203 (c)).

They are not allowed to use synthetic fertilizers or pesticides.

[Investing in Organic Farming Is an Investment in Clean Water and Air](#)

Investing in certified organic farming will help California achieve its greenhouse gas reduction goals over the long-term. We would like to work with ARB to develop a program that invests in success of organic agriculture in California as a greenhouse gas reduction strategy.

Thank you for considering our ideas. Please contact us to discuss further.

Sincerely,



Senior Policy Specialist

Cc: Cathy Calfo, Executive Director/CEO
Kelly Damewood, Director of Policy & Government Affairs

Literature Cited

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