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PROJECT CLIMATE

CALIFORNIA CLIMATE POLICY FACT SHEET: CLIMATE-SMART AGRICULTURE[1]

Agriculture is California's fourth-largest emitting sector, behind transportation, industry, and buildings. California agriculture, which produces much of the country's food, also produces 8% of the state's greenhouse gas (GHG) emissions. Furthermore, agriculture accounts for most of California's nitrous oxide (N_2O) emissions, primarily from fertilizer and manure added to soil, which have global warming potential up to 298 times that of carbon dioxide. In order to address emissions from the sector, California has recently developed a suite of "climate-smart" agriculture programs to reduce GHG emissions and provide multiple benefits that improve the health and adaptability of farms, ecosystems, and communities. This California Climate Policy Fact Sheet provides a foundational understanding of climate-smart agriculture (CSA) programs as California works towards reducing emissions from agriculture while increasing the resilience and productivity of the sector.

Understanding Climate-Smart Agriculture:
CSA involves agricultural practices such as mulching, crop rotation, and integrated crop-livestock management that increase resiliency and productivity of agriculture in the face of climate change while reducing associated emissions. CSA practices are a way to help steward farm and ranch land for future generations. CSA is often used interchangeably with terms like regenerative agriculture or agroecology. While similar in strategy and terminology, regenerative agriculture differs from CSA in that it focuses on replacing conventional farming practices that degrade soil with ones that regenerate soil's capacity to sequester carbon and nitrogen.

CSA comprises management practices that:

- Increase soil health and carbon sequestered in soil;
- Improve farming efficiencies, including water and energy use; and
- Promote sustainable land practices.

California CSA Programs:

Since 2014, California has launched a variety of programs that invest in the state's agricultural climate solutions. The grant programs, which are funded by California's Cap-and-Trade program, or California Climate Investments, provide farmers and ranchers avenues to transform their current agricultural practices to CSA practices.

1. Healthy Soils Program (HSP)
HSP is a collaboration of state agencies and departments including the California Department of Food and Agriculture (CDFA) to promote and develop healthy soils that can boost productivity and longevity and sequester carbon. HSP actions include protecting and restoring soil organic matter, identifying financing opportunities, funding research to support healthy soils, increasing the generation and use of compost, and promoting interagency coordination. CDFA administers HSP.

2. Alternative Manure Management Program (AMMP)
AMMP provides financial assistance for dairy and other livestock produces for the implementation of improved manure management practices, including storage and field application, that avoid the GHG emissions generated by traditional anaerobic digester treatments. The CDFA administers AMMP.

[1] CLEE thanks Emily Miller (J.D. Candidate 2020) for her background research contributions to this fact sheet.

3. Sustainable Agricultural Lands Conservation Program (SALCP)

SALCP protects agricultural lands that are at risk of conversion to other uses. The program funds agricultural conservation easements to maintain farmland in addition to funding local government grants to improve farmland conservation. The California Department of Conservation administers SALCP on behalf of the Strategic Growth Council.

4. State Water Efficiency and Enhancement Program (SWEEP)

SWEEP provides grants to implement irrigation systems for agriculture that reduce GHGs, reduce on-farm energy use, and conserve water. The CDFA administers SWEEP.

Evolution of California CSA Policies:

California CSA Programs have only developed since 2014, so CSA policies are relatively limited and likely to expand in the future. Key legislation leading to CSA program development include:

- Assembly Bill 32 (Health & Safety Code § 38500 et seq.) tasked the California Air Resources Board (CARB) with developing a plan to achieve technologically feasible and cost-effective statewide GHG emission reductions of 1990 levels by 2020, which California has subsequently built upon. Today, the state has a goal of meeting a target of 80% below 1990 levels by 2050 and achieving carbon neutrality.
- Assembly Bill 1532 (Health & Safety Code § 39712 et al.) requires that Cap-and-Trade proceeds be used to facilitate GHG emissions reductions and maximize economic and health-related co-benefits. Sustainable agricultural practices that reduce GHG emissions and sequester carbon are included.
- Senate Bill 1383 (Health & Safety Code § 39730.5 et al.) requires CARB to approve and begin implementing a plan for short-lived climate pollutant (SLCP) reductions with targets for statewide reductions in SLCP emissions of 40 percent below 2013 levels by 2030 (for methane and hydrofluorocarbons) and 50 percent below 2013 levels by 2030 (for anthropogenic black carbon). The bill provides specific direction for reductions from dairy and livestock operations and from landfills by diverting organic materials.

Key Outcomes and Next Steps for CSA:

Climate change is significantly impacting agricultural lands, with August 2019 estimates from the United Nations Intergovernmental Panel on Climate Change indicating that land areas have warmed at a rate almost double the global average, about 1.5 degrees Celsius on average since 1850. Furthermore, over the past 30 years, global agricultural production has fallen by 1-5 percent each decade. To combat climate change at the state level, California has begun to implement CSA programs and practices with the hopes of transforming the agricultural sector and supporting sustainable development and food security. Since their development, California programs have invested over $150 million to promote and develop CSA practices and reduce carbon emissions by approximately 43 million metric tons. Nonetheless, these investments pale in comparison to investments made across other sectors in the state. To further develop CSA, California will need more research, outreach, and innovative financing to incentivize farmers and ranchers to improve their practices for the future.