CalCAN
California Climate & Agriculture Network

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April 7, 2016

Dear Ms. Nichols,

On behalf of the California Climate and Agriculture Network, thank you for the opportunity to comment on the recent draft paper, *Healthy Landscapes 2030: California's Climate Change Vision and Goals for Natural and Working Lands.* The paper outlines a succinct vision for achieving the significant climate change solutions that our natural and working lands have to offer.

Investments in our working lands are critical to meeting California's ambitious goal of dramatically reducing greenhouse gas emissions (GHG) by 2030 and beyond. The time to start these investments is now. The sooner we start, the greater the benefits in the future.

California agriculture offers an exceptional and important mix of climate solutions. When we protect our finite agricultural lands from sprawl development we avoid and reduce significant GHG emissions associated with land use conversion and transportation. Agricultural lands also offer the unique benefits of sequestering carbon, our most ubiquitous greenhouse gas, in soils and trees. And through on-farm management that works to reduce fossil fuel inputs, enhance our soils, conserve water and energy and other natural resources and produce on-farm renewable energy we can further reduce potent GHG emissions and meet the state's climate change goals.

Investments in our farms and rangelands will pay huge dividends in other ways, including cleaner water, cleaner air, wildlife habitat, healthier and more productive farmland, ensuring our food security and jobs in our rural communities.

Our comments below are intended to build upon the discussion draft paper by offering specific climate change goals for California's agricultural sector. We support the draft paper's focus on setting 2030 and 2050 goals by acres in the natural and working lands arena. As described in the draft, acreage goals will allow for quantifiable and measurable evaluation of greenhouse gas reduction goals until more refined tools are available, such as a soil carbon inventory for the state.

We look forward to working with you on these issues.

Sincerely,

Jeanne Merrill
Policy Director

**CalCAN Recommendations:**

**A. Farmland conservation: Set goals to reduce farmland loss, reduce GHG emissions associated with sprawl**

Goal: Reduce conversion of California agricultural land to urban, suburban and rural ranchette development by 50 percent by 2030; 75 percent reduction by 2050. This will prevent the conversion of nearly 700,000 acres of agricultural land in the state, resulting in a cumulative GHG reduction of 315,191,705 t CO2e[1].

Background: Currently, 50,000 acres of farmland are converted to non-agricultural uses every year in California with over 40,000 acres of farmland lost to urban, suburban and rural ranchette development. The Farmland Mapping and Monitoring Program at the Department of Conservation has the best available farmland acreage data in the country, providing a baseline for determining the state's current status in terms of farmland acres, types of conversion and acres lost annually. This baseline data can inform the Scoping Plan goals to protect agricultural land from conversion, with a focus on protecting those lands that, if converted, will contribute to GHG-intensive urban, suburban and rural ranchette sprawl development.

Farmland conservation offers a multitude of climate benefits, such as carbon sequestration, reduced GHG emissions, renewable energy production, and greater resilience to climate change impacts for both cities and rural areas. The UC Davis study of 2012 found that an acre of urban land emitted 70 times more GHG emissions compared to an acre of irrigated, conventionally managed cropland.[2]

Research suggests that conserving farmland at the urban edge slows the spread of sprawl and reduces transportation-related GHG emissions.[3] Furthermore, agricultural land around urban areas may help cool the "hot spots" created by cities through the urban heat island effect (the tendency of urban areas to absorb and radiate solar energy). Such cooling will help offset the impacts of increased temperatures.[4] Farmland preservation provides an array of additional benefits, such as maintaining food security for Californians, enhancing biodiversity and wildlife habitat, supporting rural communities and aiding in water filtration and groundwater recharge.

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[1] We align our comments with those of the American Farmland Trust, California. In their comments, AFT provides a detailed analysis of the land and GHG savings associated with the farmland conservation goals described here.

[2] Jackson, L.E., V.R. Haden, A.D. Hollander, H. Lee, M. Lubell, V.K. Mehta, A.T. O'Geen, M. Niles, J. Perlman, D. Purkey, W. Salas, D. Sumner, M. Tomuta, M. Dempsey and S.M. Wheeler. 2012. Adaptation strategies for agricultural sustainability in Yolo County, California. California Energy Commission. Publication number: CEC-500-2012-032.
http://www.energy.ca.gov/2012publications/CEC-500-2012-032/CEC-500-2012-032.pdf
Haden, V.R., M. Dempsey, S. Wheeler, W. Salas, and L.E. Jackson. 2012. Use of local greenhouse gas inventories to prioritize opportunities for climate action planning and voluntary mitigation by agricultural stakeholders in California. *Journal of Environmental Planning and Management.* 56:553-571
http://ucanr.edu/sites/Jackson_Lab/files/215375.pdf

[3] Wassmer, R.W. 2008. California's Farmland Preservation Programs, Taxes, and Furthering the Appropriate Safeguarding of Agriculture at the Urban Fringes to Reduce Greenhouse Gas Emissions. Available at: http://ssrn.com/abstract=1276048

[4] Weare, B. 2009. How will changes in global climate influence California? California Agriculture, 63, 59-66.
Wilkinson,R. 2002. Preparing for a Changing Climate: The Potential Consequences of Climate Variability and Change for California. The California Regional Assessment, Report of the California Regional Group for the U.S. Global Change Research Program.

Without ambitious goals to stem the loss of farmland in the state, we cannot meet the state's climate change goals.

Policy mechanisms:

**Sustainable Agricultural Lands Conservation Program (SALCP):** SALCP provides critical funding to protect at-risk agricultural lands by funding permanent conservation easements. Without SALCP the state would be without any meaningful funding to support efforts to stem the loss of agricultural lands to sprawl development. The Strategic Growth Council's decision to expand funding for the program from $5 million to $40 million in FY 2015-16 will greatly improve the program's impact. However, there remain areas of improvement as the program guidelines evolve.

The FY 2015-16 SALCP guidelines narrowed those lands eligible for funding to those lands within 2 miles of development. This narrow definition of at-risk agricultural lands unnecessarily limits the program's impact and may constrain the program's effectiveness in preventing sprawl and related leapfrog development. Moreover, the program's support for local governments to develop farmland conservation policies and programs was additionally constrained in FY 2015-16 guidelines (see the Strategy and Outcomes program guidelines of SALCP). By limiting the eligible activities to five program types and requiring up front expenditure by local government (with some exceptions – e.g. co-applying with an easement application), SALCP's ability to incentivize local governments to improve farmland conservation policy and program development is constrained. We recommend a review of the eligibility criteria for agricultural conservation easement funding as well as a review of the Strategy and Outcome program guidelines in advance of the next FY 2016-17 funding round.

**California Farmland Conservancy Program (CFCP)/ Local Land Use Planning:** CFCP offers an important complement to SACLP by allowing for conservation easement protection of agricultural lands that provide multiple benefits, including climate mitigation and adaptation. Unfortunately, the program is essentially out of funds, with the exception of funding mitigation for High Speed Rail conversion of agricultural land. We recommend identifying new funding for CFCP, including future bond and General Fund funding.

Land use decisions are ultimately local decisions, but the state plays a critical role through support for local land use planning that targets key outcomes. Planning for farmland conservation is woefully lacking in key parts of the state. CFCP, which has statutory authority to support farmland conservation planning, can provide the incentive for local governments to incorporate farmland conservation policy and program development as they update their General Plans or other local planning efforts (e.g. SB 375/Sustainable Community Strategy plans and updates). New funding sources are needed for CFCP to provide incentive farmland conservation planning grants to local governments and stakeholders.

**Mitigation/CEQA**: An increasing body of case law supports the mitigation of farmland conversion with the protection of agricultural land through purchase of conservation easements[5]. But, unfortunately, in many jurisdictions conversion of farmland continues without mitigation. In its recent draft update to the General Plan Guidelines, importantly, the Office of Planning and Research acknowledges that easement purchase provides feasible mitigation of farmland loss. But more can be done by the state to inform local governments about feasible mitigation of

[5] For more on this, see: http://caff.org/wp-content/uploads/2010/07/Ag-Mitigation-Handout-2-16-111.pdf

agricultural land loss. The GPG should include model agricultural mitigation policies so that local governments do not have to reinvent the wheel as they consider these issues. The state may also consider holding a farmland conservation planning and policy summit to bring together experts in the field, local governments and other stakeholders to discuss how we can meet the state's farmland conservation and climate change goals.

**B. On-Farm Renewable Energy: Triple on-farm solar and other renewable energy production**

Goal: Triple the number of farms generating on-farm renewable energy (solar, wind, bioenergy, geothermal, etc.) to 30 percent by 2030; Increase to 75 percent of farms producing renewable energy by 2050.

Background: California farmers and ranchers produce more renewable energy than their counterparts in any other state, but there remains significant untapped potential for on-farm energy generation. Recent data suggest that roughly eight to ten percent of the state's farmers produce renewable energy, mainly solar, on their operations. The USDA's On-Farm Energy Production Survey can inform the baseline and track progress toward these goals.

On-farm renewable energy can decrease our reliance on fossil fuel-based energy sources while lowering electricity costs for farmers and ranchers. Solar photovoltaics and other renewable energy systems can replace diesel- and gas-powered irrigation pumps, yielding significant air quality benefits in addition to reduced GHG emissions. By 2012, the number of California farms reporting the installation of on-farm renewable energy systems had nearly tripled to 5,845, up from about 2,000 systems reported in 2009.[6] There is considerable potential for growth with continued financing and outreach.

Policy Mechanisms:

**Net Energy Metering (NEM)/ NEM Aggregation:** This tariff structure enables farmers to affordably offset their electricity use from the grid by exchanging renewable energy kWh credits with their utility. Its continuation will be vital to continued grower investment in renewable energy technologies, particularly on small- to medium-scale farms and ranches (which make up the majority of California agricultural operations).

Under Net Energy Metering Aggregation, this modification to the NEM program allows farmers to offset energy from meters across their operations, rather than only at the source of the renewable energy generation. NEMA thereby avoids the use of productive farmland for renewable energy purposes, and generally lowers the cost of on-farm renewable energy generation. NEMA has been hugely popular since it became available in 2014, leading to a surge in on-farm solar installations.

**Rebate Programs:** Multiple rebate programs for installing solar PV and other renewable technologies are available from municipalities and utilities. However, many of these programs have exhausted their funds or will do so soon. Strategic investment in rebates for on-farm renewable energy can help to encourage broader adoption in the agricultural community.

[6] USDA National Agricultural Statistics Service. 2014. 2012 Census of Agriculture Sate Data, Table 52: Energy.

**Bioenergy ReMAT program**: This feed-in-tariff program for bioenergy projects has a 90 MW set-aside for incentivizing agricultural bioenergy projects. Well-designed feed-in-tariffs can help to encourage the installation of innovative on-farm renewable technologies.

**Federal Grants and Tax Credits:** USDA's Rural Energy for America Program (REAP) provides small grants to assist in the purchase of renewable energy systems for agricultural operations. The Federal Business Energy Investment Tax Credit (ITC) was recently extended and provides a strong incentive for installing on-farm solar, wind, and geothermal. Support for these federal programs can help to leverage state programs to support on-farm renewable energy.

**C. Water-Energy Nexus: Target water use efficiencies for reduced energy use, GHG emissions reductions and improved climate resiliency**

Goal: Double the number of agricultural acres using innovative on-farm water management practices by 2030; Triple the number of acres under innovative on-farm water management practices by 2050.

Background: California agriculture uses roughly 80 percent of the state's developed water resources, consuming about 7 percent of statewide electricity,[7] much of it for irrigation-related purposes. Strategies and technologies for improving water use efficiency in the agricultural sector can yield significant energy-related GHG reductions while making farms more resilient to drought and water scarcity. Rapid adoption of water- and energy-efficient, GHG-reducing technologies is possible if the conditions are right. For example, in the processing tomatoes sub-sector, industry adoption of sub-surface drip irrigation increased from 6 percent to 94 percent over an approximately 10-year period.

Baseline data from the USDA's Natural Resource Conservation Service (NRCS) and the state's State Water Efficiency and Enhancement Program (SWEEP) can be used to inform and track the state's goals for increasing on-farm water use efficiency as recommended here. Such on-farm management practices should look at a diversity of practices that improve water use efficiencies, including activities that increase soil organic matter for improved water-holding capacity. NRCS conservation practices with potential to improve soil water-holding capacity include cover cropping, mulching, compost application, and resource-conserving crop rotations. Information on the efficiencies gained through projects funded by CDFA's SWEEP could be used to inform goals for the reduction of water-related energy use in agriculture.

Policy Mechanisms:

**CDFA's SWEEP:** This program funds on-farm water use efficiency projects that simultaneously reduce GHGs. To further its reach and spur a wider array of innovative on-farm water management practices, SWEEP should be expanded to incentivize soil management practices with potential to decrease water use. The state should also look to leverage state investments by more closely working with USDA NRCS. The state could look to leverage its funds by coupling its incentives with USDA incentives, reaching a wider audience of farmers, including small and mid-scale operations. CalCAN will release a progress report on SWEEP this spring where we will provide more detail on recommended policy mechanisms to expand the program's reach.

[7] PG&E Energy Efficiency Portfolio Program Implementation Plan: Statewide Program Agriculture Program, pg. 3

**Utility-run Energy Efficiency programs**: The large investor-owned utilities in California administer a variety of energy efficiency programs, including some in the agriculture sector. These programs provide incentives and advice to growers, and could deepen their focus on the water-energy nexus by providing additional incentives for a greater diversity of water and energy conserving practices.

**D. Dairy Methane Emissions:**
At this time, we do not suggest a goal here for dairy methane emission reductions as those goals are being discussed as part of the on-going Short-Lived Climate Pollutant work. CARB will soon release its strategy for SLCP, which will include goals for achieving voluntary dairy methane emissions reductions. Those goals should be informed by and aided by a diversity of strategies, which we discuss more below.

Background: CARB can provide a solid baseline for dairy sector methane through its GHG inventory, and USDA data (including from the USDA Economic Research Service) can provide information on California dairy characteristics, practices, and trends. To reach wide swaths of the state's diverse dairy industry will require a diversified set of strategies and incentives. Composting, dry manure management systems, solid separators, and pasture-based practices, in addition to anaerobic digesters, must all play a role[8]. Efforts to reach the methane targets should reflect and acknowledge the economic and practical realities of California's stressed dairy industry.

California's agriculture sector is responsible for about 60 percent of the state's methane emissions, and the state's dairies are the primary source of those emissions. Dairy methane emissions result from both enteric fermentation and manure management; however, manure management strategies for methane reductions are better-researched and easier to implement in most cases, and are therefore a focus of state efforts on this issue. Storing manure under anaerobic conditions, after the manure is 'flushed' into lagoons, generates significant quantities of methane. These liquid manure management strategies are more common in California than in many other states, although some dairies also use dry scrape systems. Dry manure management strategies include composting; compost can then be used as a form of fertility on-farm or sold off-farm as an agricultural product. Pasture-based management practices, in which manure is deposited on pasture where it decomposes aerobically, may provide a methane reduction benefit in some cases. To date, the state has almost exclusively invested in anaerobic digesters, which capture the methane from liquid systems to generate bioenergy.

**Policy Mechanisms:**
**Short-Lived Climate Pollutants Strategy**: As discussed above, pursuant to SB 605 (2014), CARB is preparing a Short-Lived Climate Pollutants Strategy. A portion of the methane reductions being sought will come from the dairy sector. This effort could be used to envision and structure state investments and activities in pursuit of the dairy methane target, which must include a diversity of dairy strategies to be successful.

**Agricultural Energy and Operational Efficiency funds (CDFA)**: These expenditures from the GGRF have been used to fund dairy digesters. The use of the funds could be expanded to support a diversified portfolio of dairy methane strategies to achieve multi-benefit reductions across a wider swath of the industry.

[8] For a more detailed discussion of these issues, please see http://calclimateag.org/methane-on-dairies/

**Healthy Soils Initiative:** Composting of dairy manure and the use of digestate (a product of the anaerobic digestion process) as a soil amendment could be incentivized through the Healthy Soils Initiative. These practices would have the benefit of both reducing dairy methane and increasing carbon sequestration.

**CalRecycle compost programs:** CalRecycle is investing in infrastructure, market development, and improved regulations to significantly boost the production and usage of compost in California. Dairy manure, particularly when collected through 'scrape' systems, can be composted in ways that reduce overall methane emissions. Composted dairy manure can be a valuable product and a multi-benefit agricultural input, and should be included in CalRecycle's efforts.

**E. Healthy Soils: Achieving Carbon Sequestration and Reduced Nitrous Oxide Emissions:** We will follow up these initial comments with more detailed comments on goals and strategies for achieving the carbon sequestration and reduce greenhouse gas emissions aims of Healthy Soils Initiative. We note that similar to the water/energy efforts, described above, the state can develop its baseline for healthy soils with USDA NRCS data. NRCS has a soils initiative, focused on improving soils organic matter and related carbon sequestration benefits. As such, many of the farm practices that NRCS supports through its conservation programs in California are aimed at improving soil health. Working with CA NRCS, the state can leverage its funds for increasing carbon sequestration in agricultural soils and reducing greenhouse gas emissions.