



Resilient Farms, Healthy Communities, and Lower Costs

*Recommended Actions for the
Next Administration*



ABOUT CalCAN

CalCAN is a California-wide network of farmers, ranchers, agricultural experts, researchers, and advocates who advance public policies at the nexus of agriculture, climate change, and justice. Since 2009, we have been a trusted voice for practical farmer-centered policy solutions. Our work helps ensure farmers and ranchers have the resources and policy support needed to adopt practices that improve soil health, reduce water use, protect farmland, reduce greenhouse gas emissions, and strengthen rural communities. By scaling adoption of these practices, California's food and farming system can become more resilient, healthy, and just while also removing more greenhouse gas emissions from the atmosphere than it emits. CalCAN's advocacy, in collaboration with many legislative champions, agency allies, and partners in our network, has:

- Established the state's first-ever targets for agricultural climate solutions.
- Established five state-funded Climate Smart Agriculture programs that have invested over \$1 billion and reduced on-farm emissions by about 27 million MTCO₂e.
- Won \$300 million for climate smart agriculture, farmworker well-being, and local food infrastructure in the state's 2024 climate bond measure, Proposition 4.
- Inspired multiple federal marker bills and state-level policy advocacy efforts.

Acknowledgements: This document was authored by CalCAN staff with input from our [farmer, science, and policy advisors](#) and other climate and agriculture experts in our network.

Photo Credits: Cover middle right: USDA photo by Lance Cheung. About CalCAN background: Photo by Saxon Holt Photography.



www.calclimateag.org



INTRODUCTION

Farmers and farmworkers are the backbone of California’s rural communities, its \$60 billion agricultural economy, and the nation’s supply of healthy food. Despite their essential role, they face unprecedented challenges, including record-high input costs, worsening climate change impacts, and increasing regulations. As a result, California is losing an average of 1,500 family farms and 40,000 acres of farmland per year. At the same time, California’s farmers, farmworkers, and rural communities continue to suffer from cancer, asthma, and other chronic health issues at disproportionate levels due to their unfulfilled right to clean air and water. The costs of these challenges will continue to spiral until we address their root causes.

The next California Governor and his administration has the opportunity to support farmers and farmworkers in transitioning to more resilient and regenerative agricultural systems that reduce air and water pollution, support the state’s climate goals, and reduce our reliance on imported and costly inputs. This preventive approach will be more cost-effective than treating the symptoms of increasing climate disasters, healthcare costs, and food insecurity.

The following recommended actions are achievable in the first two years of the new administration by building on and improving existing policies, regulations, and programs.¹

THE GROWING COSTS OF INACTION	
TO CALIFORNIA FARMERS:	TO CALIFORNIA COMMUNITIES:
 \$2 BILLION the total economic losses in California agriculture caused by drought in 2022	 \$15.9 BILLION the cost to provide clean water to fulfill Californians’ human right to water
 \$270 MILLION the value of crop losses in California agriculture caused by floods in 2023	 \$721 MILLION the annual cost of air pollution in the San Joaquin Valley
 30-50% the spike in fertilizer and diesel prices in 2026	 1 IN 6 the number of children who have asthma in the Central Valley
 10% the percentage of California farms lost between 2017-2022	 2% the estimated annual increase in food prices caused by climate change in North America by 2035

¹ Many of the challenges and solutions described below are echoed and described in more detail in CDFA’s [Climate Resilience Strategy for California Agriculture](#) (March, 2026) and CalCAN’s [Climate Platform for California Agriculture](#) (October, 2023).

01

STRENGTHEN FARM RESILIENCE WHILE IMPROVING AIR AND WATER QUALITY

Vision of Success

California farms adopt systems and practices that reduce input costs, including fertilizer, pesticide, energy, water, and labor costs, reduce air and water pollution, improve resilience to market and climate shocks, and make the state's agricultural soils an ongoing carbon sink. By adopting these practices, farmers experience reduced regulatory compliance costs and reporting burdens.

Current Challenges

The wars in Ukraine and Iran have both nearly doubled the prices of fertilizer and diesel due to the disruption of global fertilizer and fossil fuel supply chains. Labor and [regulatory compliance costs](#) also continue to increase. On top of that, California farms are bearing the brunt of more frequent and severe droughts, floods, wildfires, and extreme heat, while at the same time having to reduce their groundwater use to comply with the [Sustainable Groundwater Management Act](#). These growing pressures have contributed to rapid consolidation in the agricultural industry and the loss of 10 percent of California farms between 2017-2022. Meanwhile, communities in the Central Valley continue to experience disproportionately high rates of cancer, asthma, and other chronic diseases due to the [worst air quality in the country](#) and [groundwater pollution](#) caused in part by agricultural practices and inputs. Finally, agriculture remains a source, rather than a sink, of greenhouse gases (GHGs).

Progress to Date

Thousands of innovative farmers and ranchers in California have developed increasingly resilient and regenerative practices, including: organic fertility systems, cover crops, low and no-till systems, biological pest management, whole orchard recycling, off-ground harvesting, prescribed burning and grazing, hedgerows, and riparian buffers. These systems and practices reduce reliance on imported, fossil fuel-based inputs, improve soil and plant health, improve water infiltration and holding capacity, restore ecosystems and biodiversity, reduce dust and pesticide drift, reduce surface and groundwater pollution that impacts humans and wildlife, decrease GHG emissions, and increase soil carbon storage.

The state's [Climate Smart Agriculture incentive programs](#) have provided vital support to thousands of farmers in the form of the capital, equipment, and technical assistance needed to successfully adopt and de-risk the learning curve for these systems and practices. Research has shown these programs are working, as the vast majority of participating producers [intend to continue using their newly adopted practices](#) after their grant funding ends. In fact, nearly three-quarters of producers felt their farm was more resilient after implementing the new practices, and over half of the producers surveyed felt their practices had a significant impact on the adoption of these practices by other growers in the community. Demand for the Climate Smart Ag programs has typically [outpaced available funding](#) by two times.

ACTIONS FOR THE NEXT ADMINISTRATION

- **Increase funding for the Climate Smart Agriculture programs** under CDFA's Office of Agricultural Resilience and Sustainability, including the Healthy Soils (HSP), Alternative Manure Management (AMMP), and State Water Efficiency and Enhancement (SWEEP) programs.
- **Increase funding for air quality programs to promote off-ground harvesting, alternatives to ag burning, and electrification of ag equipment.** Prioritize small farms which have the least access to capital and equipment.
- **Update the Irrigated Lands Regulatory Program** to incorporate the 2026 [Expert Advisory Panel's recommendations](#) that encourage healthy soils practices, as a strategy for reducing nitrate pollution of groundwater, and reduced reporting burdens for farms that pose a reduced risk to groundwater contamination.
- **Implement the forthcoming Statewide Compost Strategy** to increase the availability and affordability of high-quality compost that reduces reliance on imported fertilizers and supports the transition of the state's agricultural soils to a carbon sink.

02

SUPPORT DAIRIES TO IMPROVE WATER QUALITY AND PRODUCE COMPOST

Vision of Success

Policies, regulations, and incentives align to support dairies in adopting alternative manure management systems that produce compost, create a more circular regional economy, improve water quality for nearby communities, and reduce potent methane emissions.

Challenge

Low milk prices and rising input and regulatory costs have led to rapid attrition and consolidation in the dairy sector. Over the past three decades, [California lost over 60% of its dairies](#). The 1,100 dairies that remain, which are mainly in the San Joaquin Valley, are still the state's largest agricultural economic powerhouse, generating \$8.6 billion in sales annually. These dairies produce tens of millions of tons of manure each year, which is often managed in wet, anaerobic systems, producing methane that accounts for one-third of California's agricultural GHG emissions. This manure also contributes significantly to groundwater nitrate pollution when it is applied to cropland at higher rates than plants can use. The updated [State Water Board's Dairy General Order](#) aims to address this water quality challenge through stricter regulations in the years ahead.

Progress to Date

Innovative dairies have developed alternative manure management systems that reduce methane emissions, groundwater use, and groundwater nitrate contamination. The compost produced from manure solids can then be used on-site and/or sold to nearby farms to increase soil health, sequester carbon, and decrease the need for imported fertilizers. This helps producers comply with groundwater regulations while also presenting a unique opportunity for a more circular, climate-beneficial economy in the San Joaquin Valley. A recent [analysis](#) estimates that the available nitrogen in dairy manure could replace a significant portion of the imported synthetic nitrogen fertilizers currently applied on irrigated cropland across the Central Valley and would be worth approximately \$300 million at current fertilizer prices.

The state's [Alternative Manure Management Program](#) (AMMP) has supported over 200 dairies with the upfront capital and technical assistance needed to adopt these manure management systems. AMMP ranks as the [fourth most cost-effective climate program](#) in California and has consistently been oversubscribed.

ACTIONS FOR THE NEXT ADMINISTRATION

- **Increase funding for AMMP** to continue supporting dairies with the capital and technical assistance they need to implement these systems.
- **Establish a streamlined reporting pathway for dairy manure composting** and other manure management projects, coordinated across state, regional, and local agencies.
- **Review potentially duplicative CalRecycle permitting requirements for dairies** that sell or give away finished compost.
- **Continue the [Manure Recycling and Innovative Products Task Force](#)** to support research, interagency coordination, and stakeholder engagement on these issues.
- **Update the California Air Resources Board's [quantification methodology](#) and scenario modeling** to account for new research, advanced manure management practices, and changes in regulations and incentives affecting demand for different manure management systems.

03

PROTECT CALIFORNIA'S FARMLAND AND THE NATION'S HEALTHY FOOD SUPPLY

Vision of Success

California's most fertile farmland is permanently protected while the state continues to produce most of the nation's vegetables, fruits, and nuts. Current and future generations of farmers can afford land and obtain secure land tenure. Marginal or fallowed farmland is strategically repurposed for [multi-beneficial land uses](#) such as less water-intensive agricultural production systems, wildlife habitat, and [agrivoltaic and ecovoltaic](#) systems.

Challenge

California is losing [40,000 acres of farmland per year](#) primarily to large-scale solar development, but also through sprawling suburban growth. This trend is likely to worsen in the years ahead with continued implementation of the Sustainable Groundwater Management Act, which is expected to result in the fallowing of at least [half a million acres](#) of irrigated cropland, as well as growing energy and land demand from data centers. Poor land use planning and land management during this transition is likely to accelerate the loss of family farms, worsen local and domestic food insecurity, [increase asthma](#) and other respiratory illnesses due to dust and other air pollutants, and depress local agricultural economies, jobs, and tax revenues.

Progress to Date

Since 2015, the [Sustainable Agricultural Lands Conservation Program](#) (SALC) has received 10 percent of funding from the Affordable Housing and Sustainable Communities Program (AHSC) to help meet AHSC's statutory goals of protecting agricultural lands while encouraging compact, infill urban development. SALC has permanently protected almost 280,000 acres across the state (equivalent to the area of the City of Los Angeles) through conservation easements and fee-title acquisitions. The program has also funded 42 planning projects and 53 capacity-building projects to help local governments, regional agencies, and nonprofits develop agricultural conservation plans. The SALC program is the [state's third most cost-effective climate program](#) and delivers 15 percent of the Greenhouse Gas Reduction Fund's total GHG emission reductions with only two percent of its funding. SALC demand regularly outpaces available funding.

Agrivoltaic systems, which involve growing crops or grazing livestock below or between solar panels, are an emerging solution to solar and agricultural land use conflicts that may also provide economic, farmworker health, water use efficiency, and air quality benefits. Agrivoltaics have been successfully piloted in many [states](#) and [countries around the world](#). In California, sheep grazing under solar panels is already occurring on tens of thousands of acres and agrivoltaics trials are underway at UC Davis, UC Merced, CSU Chico, and Pitzer College.

ACTIONS FOR THE NEXT ADMINISTRATION

- **Ensure adequate funding for SALC to protect at-risk agricultural lands** and family farms and help local governments develop agricultural conservation plans.
- **Align, coordinate, and update existing land use planning frameworks and policies** to guide investments and policy actions that protect California's most important agricultural lands from conversion. These include the state's [30x30 strategy](#), Williamson Act, Governor's Office of Land Use and Climate Innovation's [General Plan guidelines update](#), Department of Conservation's [Farmland Mapping and Monitoring Program](#), CDFA's [Climate Resilience Strategy](#), and the [Strategic Growth Council's](#) programs.
- **Support access to farmland for small, mid-scale, and underserved farmers** through financing tools and by funding land trusts and non-profits to purchase, protect, and transfer or lease land to farmers, building on the Proposition 4 land access program.
- **Invest in agrivoltaics research and demonstration** to determine optimal crops, designs, management practices, and deployment strategies for California.
- **Proactively assess and address regulatory and permitting barriers** for farmers and solar developers interested in deploying agrivoltaic systems in California, including by enacting a standard definition of agrivoltaics in statute.

04

PROVIDE STABLE, DIVERSIFIED FUNDING TO SUPPORT THE TRANSITION TO MORE RESILIENT AND REGENERATIVE AGRICULTURAL SYSTEMS

Vision of Success

California farmers and farmworkers have access to the capital, training, and technical assistance they need to adopt more resilient and regenerative systems that improve air and water quality, support the state's climate goals, protect productive farmland, and reduce our reliance on imported inputs. The state has stable, diversified funding to support this transition.

Challenge

Farms and dairies often operate [on thin margins with a high degree of financial uncertainty](#) from year-to-year. Farmworkers, who are sometimes responsible for implementing new systems and practices, lack access to [relevant training](#). This makes it difficult for most farms to take risks with new systems and practices, especially if they [require upfront investments and have long-term payback periods](#).

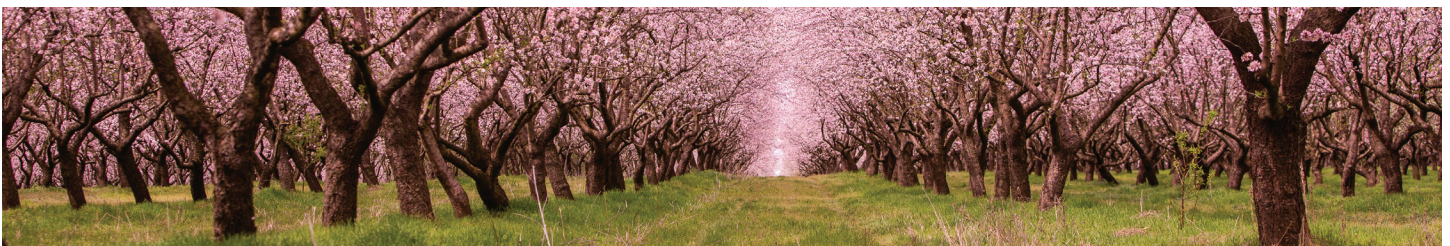
California's [Climate Smart Agriculture Programs](#) have assisted thousands of farms and ranches and about 200 dairies with capital and technical assistance. Achieving a widespread transition to more resilient and regenerative systems and practices will require sustained investment to reach thousands more farms and hundreds more dairies, along with targeted training and technical assistance for farmworkers and small and historically underserved farms. The two primary sources of funding for these programs—the Greenhouse Gas Reduction Fund (GGRF) and natural resource bonds (Prop 68 and Prop 4)—have been highly variable and inconsistent.

Progress to Date

Since 2014, the GGRF has provided over \$600 million to SALC and over \$250 million to the Climate Smart Agriculture Programs. Proposition 68 (2018) provided an additional \$20 million to SWEEP. Proposition 4 (2024) provided \$65 million to Healthy Soils, \$40 million to SWEEP, and \$15 million for a new equipment-sharing program.

ACTIONS FOR THE NEXT ADMINISTRATION

- **Set aside a minimum of eight percent of GGRF for agricultural climate solutions** to provide more stable investments that increase carbon removal and storage on agricultural lands and reduce agriculture's eight percent share of statewide GHG emissions.
- **Prioritize [Fertilizer Research and Education Program](#) (FREP) proposals** that support farmers in reducing reliance on imported fertilizers and complying with regulations, such as research on low-residue winter cover crops, manure compost, atmospheric nitrogen losses, and evaluating the potential of residual soil nitrate in lieu of fertilizer nitrogen.
- **Support cities in satisfying their [SB 1383 compost procurement requirements](#)** by investing in regional compost procurement programs, composting operations, and compost spreading equipment (per AB 2346, Lee, 2024).
- **Improve access to loans for capital-intensive agricultural climate solutions**, including direct and bridge loans, via IBank's [Climate Catalyst Revolving Loan Fund](#).
- **Expand and improve state procurement policies** that expand markets for farms using climate smart practices and increase access to healthy, California-grown foods, as modeled by CDFA's [Farm-to-School Program](#).



APPENDIX

CALIFORNIA AGRICULTURAL EMISSIONS: SOURCES, SOLUTIONS, STATE TARGETS AND PROGRAMS

GHG Emissions Sources in Ag+	Solutions	Co-Benefits	Current State Targets and Policies	Current State Programs*
Manure management (34%)	Convert to alternative manure management systems to reduce methane emissions	Reduced input costs, improved air/water quality	SB 1383 : reduce manure methane emissions 40% below 2013 levels by 2030	AMMP, Dairy Plus
Livestock digestive processes (38%)	Research and implement strategies to reduce enteric methane emissions	None	None	LEMER-RP, Clim3ate-RP
Crop production (23%) Includes: nitrous oxide emissions from fertilizer use and irrigation; soil carbon loss from soil disturbance; carbon dioxide emissions from crop residue burning	Improve irrigation efficiency and nutrient management to reduce nitrous oxide emissions	Reduced input costs, improved air/water quality	Irrigated Lands Regulatory Program and CV SALTS aim to reduce nitrogen and irrigation inefficiency, which cause nitrous oxide emissions	SWEEP, WETA, HSP, FREP
	Transition to more regenerative, biological fertility and integrated pest management systems to reduce fossil fuel-based fertilizer and high-risk pesticide use	Reduced input costs, improved resilience to pest pressure	AB 1757 : 10% organic acreage by 2030, 15% by 2038, 20% by 2045 (also in Scoping Plan); Sustainable Pest Management Roadmap : Phase out high-risk pesticides by 2050	HSP, OTP, AMMP, BIFS, FREP
	Adopt soil health practices to reduce soil carbon losses and sequester carbon	Improved soil health, drought/flood resilience, and biodiversity	AB 1757 : additional 140,000 acres/year through 2030; 190,000 acres/year through 2038; 190,000 acres/year by 2045	HSP, OTP
	Adopt alternatives to ag burning to reduce carbon dioxide emissions and sequester carbon	Improved air quality and soil health	CARB and SJVAPCD : Enacted near-complete phase out of agricultural waste burning in 2025	SJVAPCD Ag Burning Alternatives, HSP
Fuel combustion (5%)	Reduce fuel combustion by electrifying irrigation and ag equipment and deploying on-farm renewable energy	Reduced energy costs, improved air quality	Scoping Plan : Electrify 25% of agricultural energy demand by 2030 and 75% by 2045; Clean Air Act Air Quality Standards	FARMER, CORE, SWEEP
All of the above	Increase technical assistance to support farmers in adopting the solutions above	All of the above	None	CSA-TAP, WETA

+Data Provided by CARB from the 2025 edition of the AB 32 Greenhouse Gas Inventory

*Program Acronyms: AMMP: Alternative Manure Management Program, BIFS: Biologically Integrated Farming Systems Program, Dairy Plus: Dairy Plus Program, Clim3ate-RP: California Livestock Methane Measurement, Mitigation, and Thriving Environments Research Program, CORE: Clean Off-Road Equipment Vouchers, CSA-TAP: Climate Smart Agriculture Technical Assistance Program, FARMER: Funding Agricultural Replacement Measures for Emission Reductions, FREP: Fertilizer Research and Education Program, HSP: Healthy Soils Program, LEMER-RP: Livestock Enteric Methane Emission Reduction Research Program, OTP: Organic Transition Program, SJVAPCD Ag Burning Alternatives: San Joaquin Valley Air Pollution Control District Ag Burn Alternatives Grant Program, SWEEP: State Water Efficiency and Enhancement Program, WETA: Water Efficiency Technical Assistance Program