CLIMATE RESILIENCE STRATEGY FOR CALIFORNIA AGRICULTURE

ENVIRONMENTAL FARMING ACT SCIENCE ADVISORY PANEL – SEPTEMBER 13, 2024

CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

cdfa

Progress Update and Next Steps

April-July: CDFA staff researched, outlined, and drafted subject-specific chapters for the strategy

May 9 – 10: 2-Day EFA SAP workshop was held to hear presentations from partner agencies and subject experts on specific topics

August: Revisions and CDFA internal review

September: Interagency and stakeholder review; bring on a contractor

Fall 2024: Public comment and stakeholder outreach

Winter 2025: Revisions

Spring 2025: Tentative Release

Chapter Outline

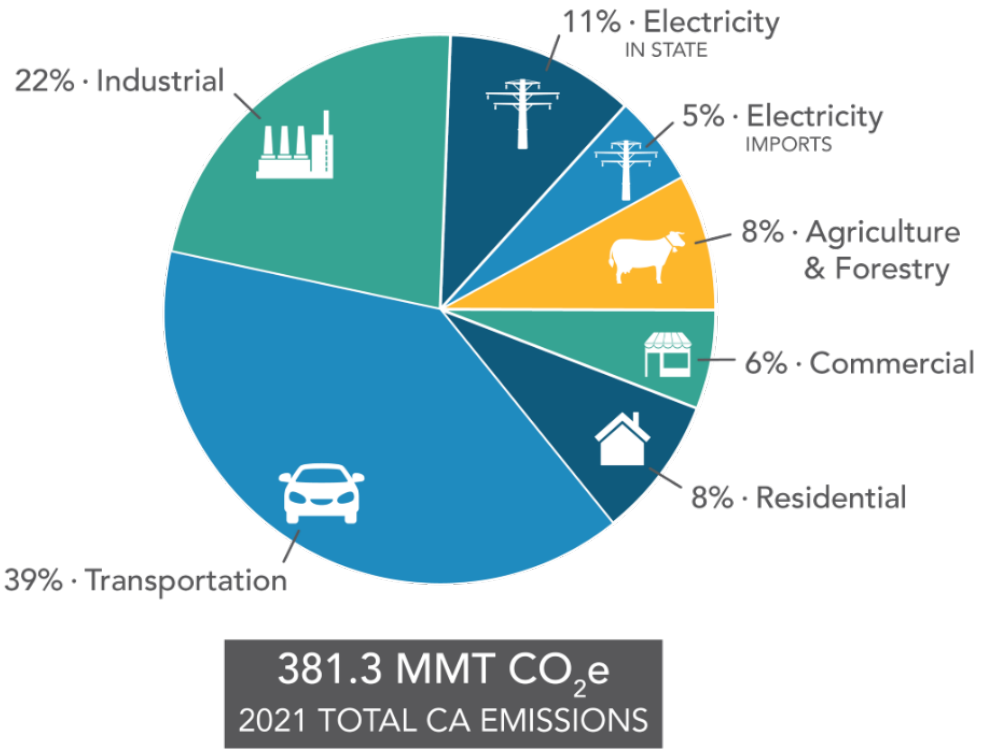
- Introduction
- Ch 1. Climate Change Impacts on Agriculture
- Ch 2. Soil Health
- Ch 3. Biodiversity on Farm
- Ch 4. Pest Pressure
- Ch 5. Animal Health
- Ch 6. Climate Change and the Land Base
- Ch 7. Dairy and Ranch Sustainability
- Ch 8. Energy and Agriculture
- Ch 9. Climate Change Driven Economic and Workforce Opportunities
- Ch 10. National and International Engagement
- Conclusion

Section Outline

- In each section:
  - Challenges
    - How this topic affects/is affected by climate change
  - Current Actions by the state
    - Lots(!) of work being done by federal, local, private stakeholders but the strategy will mostly focus on work done by the state and partnerships with the state
  - Opportunities
  - Call-out boxes provide case studies and highlights of additional related challenges or work that may not fit within the narrative
  - How the state is addressing equity with regards to action

Introduction

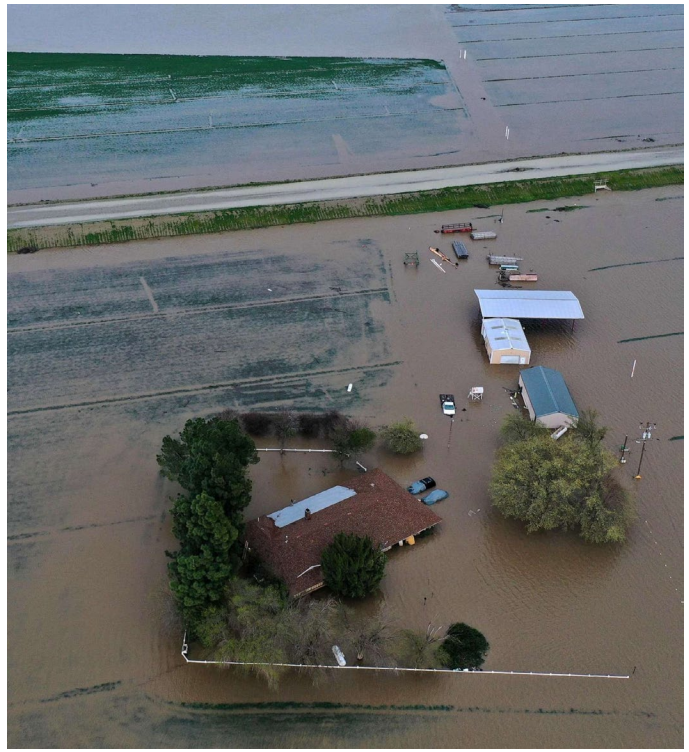
- Ag Vision 2030: Foster climate-smart, resilient, and regenerative food systems
- Geography & Demography of CA Ag
- Brief overview of climate change effects on CA Ag
- Current Guiding Plans/Policies
- Scoping Plan, NWL Climate Smart Strategy, CA Climate Adaptation Strategy
- **California Ag Climate Resilience Strategy Goal: present comprehensive picture of challenges, actions, and work needed to build climate resilience for California Agriculture**



https://ww2.arb.ca.gov/ghg-inventory-data

Ch. 1. Climate Change Impacts on Agriculture

- Increasing prevalence of extreme heat, drought, and flood
- Challenges include:
  - Decrease in yields
  - Negative impacts on animal health, productivity
  - Increasing pest pressure
  - Economic damages
- Current CDFA actions include programs that provide:
  - Long-term resilience and adaptation
  - Emergency preparedness
  - Emergency response
- Other state agency run resilience-building and emergency response programs
- Disproportionate impacts of extreme events on SDFRs, small scale producers, and farmworkers



Ch. 2. Soil Health

- Agriculture requires management of soil health; climate-driven extreme weather can damage soil health
- CDFA actions to protect and improve soil health include:
  - Healthy Soils Program
  - Belowground Biodiversity Report recommendations
- Challenges/opportunities identified include:
  - Long term SOM data collection
  - Inclusion of Tribal practices
  - Developing a strategy for long-term adoption and affordability of healthy soils practices

Healthy Soils Program Incentive Award Recipient Applying Compost to Orchard

Ch. 3. Climate Change and Biodiversity

- On-farm biodiversity and crop diversification improves resilience through suppressing pest outbreaks and mitigating pathogen transmission
- Climate change driven threats include:
  - Introduction of invasive species
  - Habitat loss
- CDFA actions include:
  - Pollinator Habitat Program
  - Healthy Soils Program
  - Organic Transition Pilot Program
- State Agency/Strategic Partnership Actions include:
  - CA Biodiversity Network
  - CA Multi-agency Monarch
  - Pollinator Conservation Collaborative
  - Fish habitat protection – e.g. The Nigiri Project
- Opportunities include:
  - Riparian habitat restoration on rangelands
  - Planning for native plant and seed supply
  - Better understanding biodiversity-related food safety concerns

Ch. 4. Pest Pressure

- Climate-drivers can increase pest impacts by:
  - Altering pest development, reproduction rates, lifespan, behavior, and geography
  - Weakening plant defenses
  - Complicating the implementation of pest management strategies
- Current CDFA Actions include:
  - Division of PHPPS addresses pest pressure through the exclusion and eradication of pests
  - The Comprehensive Pest Prevention Program Analysis (C3PA)
  - OPCA's Proactive Intergrated Pest Management Solution Program
- Opportunities include:
  - The expansion of the Pest Control Advisory workforce
  - The development of models and tools to improve pest prevention, detection, and eradication

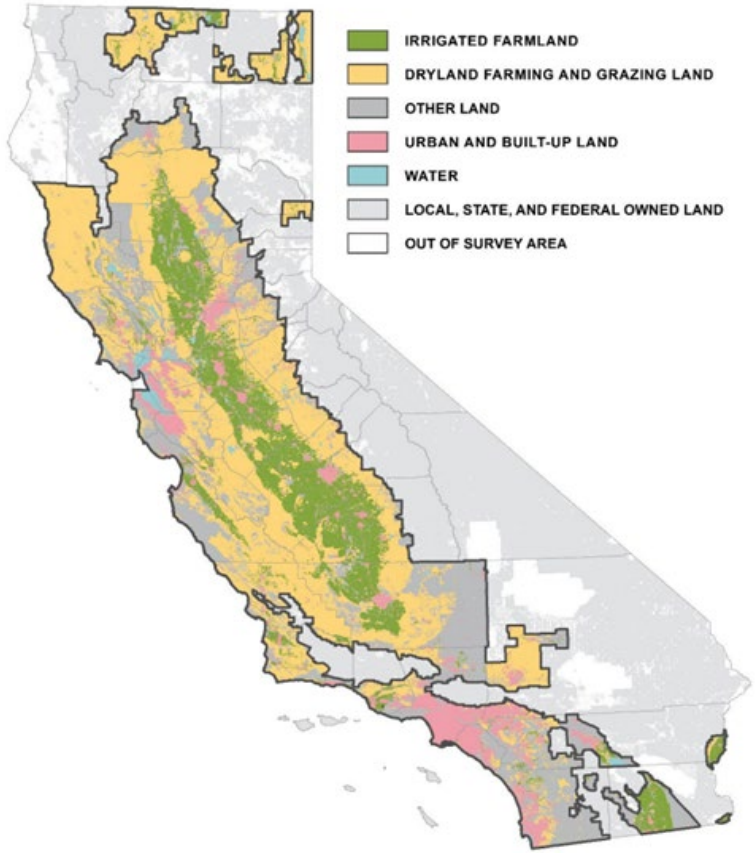
Ch. 5. Animal Health and Climate Change

- Climate change increases pest and disease growth and spread
- Extreme temperatures can lead to significant health effects and death in livestock
- CDFA actions include:
  - California Animal Response Emergency Support
  - Secure Food Supply Program from CDFA's Animal Health
- Opportunities include:
  - Tools like an app developed by USDA ARS to predict heat stress
  - Support for farmers and ranchers to install shade and cooling structures and facilities

New USDA App Protects Cattle from Heat Stress : USDA ARS

Ch. 6. Climate Change and the Land Base

- Agricultural land loss due to urbanization and sprawl as well as drought and constrained water access
- Policies and actions to protect agricultural land and build resilience include:
  - The Williamson Act (1965)
  - California Farmland Conservancy Program
  - Sustainable Agricultural Lands Conservation Program.
  - Multibenefit Land Repurposing Program
- Opportunities include:
  - Agricultural land conservation by local planning entities
  - Promotion and incorporation of Land Equity
    - SGC's Land Equity Taskforce



Ch. 7. Dairy and Ranch Sustainability

- Dairies are the single largest contributor to farm gate value in California
- Environmental impacts from dairies
  - Methane, nutrient runoff, etc.
- Management of grazing lands for beef cattle
- Current state programs address manure methane emissions and support research on manure and enteric methane emissions, like AMMP, DDRDP, DairyPlus, and CLIM3ATE-RP.
- Opportunities include:
  - Expansion and adoption of prescribed grazing
  - Methane management opportunities outlined in Manure Recycling and Innovative Products Task Force
  - Continued enteric methane incentive program development



(Left – Compost Bedded Pack Barn with a recently tilled loafing area installed for a 2017 AMMP project. / Middle - Kooistra 2022 AMMP Recipient Manure solid-liquid separator / Right - Windrows for composting separated manure solids at a 2019 AMMP project)

Ch. 8. Energy and Agriculture

- Energy use is critical to on-farm and post-farmgate operations
- Water conveyance, machinery, decision making tool operation, to product processing machinery, refrigeration, and more
- State agencies work includes programs which address:
  - Energy demand and efficiency
  - Conservation and electrification
  - Water use efficiency
  - Equipment and vehicle upgrades
  - On-site energy generation
  - On-farm fuel production
- Opportunities to improve:
  - Further on-farm energy production including agrivoltaics, hydrogen production, and woody biomass
  - Better understanding on energy demand and electrification barriers

Is Agrivoltaics Right for California? - Public Policy Institute of California (ppic.org)

Ch. 9. Economic and Workforce Opportunities

- Climate change is narrowing the margins for farmer and rancher livelihoods
  - Opportunities for building economic resilience in climate change include Circular economies, climate-smart agriculture procurement opportunities, carbon markets
  - Need significant infrastructure, marketing, and continued research and development for measuring and monitoring
- A climate smart workforce is needed
  - Programs and efforts such as the C2P2, CalAgPlate Grant Program, the Farmworkers Advancement Program and the Agriculture Initiative, the Agriculture Education Unit at Cal Department of Ed., and CCCs
  - Opportunities exist for cross-discipline training for technical assistance

CDFA - California Farm to School Incubator Grant Program

Ch. 10. National & International Engagement

- Need to build networks across state and country boundaries to address agricultural issues from climate change and climate change mitigation on global scale
- CDFA is engaging in many international efforts to address the impacts of climate change and food security
  - Trade missions
  - MOUs and LOIs
  - Bilateral and multilateral agreements
- CDFA is also working closer to home to connect states' efforts
  - US Climate Alliance

California Welcomes New Zealand Prime Minister to Highlight Partnerships on Climate and Energy – CDFA's Planting Seeds BlogCDFA's Planting Seeds Blog

Discussion

- **Initial Reactions?**
- Does the organization present information logically and enhance understanding
  - Edits for the titles/headers, flow
- Are there any missing topic areas?
  - How to include? Call out box vs. addition to section/new section
  - Internal flags included stronger equity and tribal emphasis
- Overarching themes to draw out?
  - From May meeting -> multibenefit land use / agency coordination, workforce development & health, benefit and co-benefit measuring and monitoring
  - Internal flags included a focus on state actions to support small-scale producers