

Recommendation	Specific Recommended Activity & CDFA's Response
1. Grower Technical Assistance	<ul style="list-style-type: none"> <li>➤ Public-Private Investment <ul style="list-style-type: none"> <li>• With funding provided by United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS), CDFA provided technical assistance for the State Water Efficiency and Enhancement Program (SWEEP) <li>➤ Increase Grower Awareness to Technical Assistance <ul style="list-style-type: none"> <li>• With funding provided by USDA NRCS, CDFA provided SWEEP grant application technical assistance – June 2016 <li>➤ Clearinghouse for Best Management Practices (BMPs) <ul style="list-style-type: none"> <li>• CDFA's Fertilizer Research and Education Program (FREP) is an important training resource on nutrient management practices in CA and funds nutrient management curriculum development for CCAs and growers - Ongoing <li>• Climate Smart Agriculture webpage (in development) will include database of BMPs that promote climate change resilience <li>• CDFA's SWEEP identified a host of BMPs for greenhouse gas reduction and water conservation in crop irrigation. <li>➤ New Training for Climate Change Adaptation <ul style="list-style-type: none"> <li>• Prepare power point presentation for outreach purposes: 1) Impact-focused for growers and Consortium members- post on website 2) Policy-focused for agencies/key partners – February 2014 <li>• Presentation to wine grape growers on climate change adaptation at Risk Management and Sustainability Workshop organized by the California Sustainable Winegrowing Alliance – June 16 and July 12, 2016

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<p>2. Interagency Cooperation</p>	<ul style="list-style-type: none"> ➤ CDFA Advocacy for Agricultural Adaptation Needs in Cross Agency Discussions <ul style="list-style-type: none"> • Presentation on the Climate Change Consortium to State Board of Food and Agriculture - October 8, 2013 • Contact key partners and present them with Climate Change Consortium Recommendations – October 2013 • Emails to state and county Farm Bureaus - October 21, 2013 • Emails to LAFCOs, ILRP of Regional Water Boards - October 21, 2013 • Integration of Climate Change Consortium recommendations into federal task force recommendations (Feb 2014) and USDA Climate Hub Assessment (2014-2015) • CDFA works closely with partner state agencies on climate change adaptation and mitigation efforts: <ol style="list-style-type: none"> 1. Safeguarding California plan for climate change adaptation – Update 2014 2. Safeguarding Implementation Plan - 2016 3. AB 32 Scoping Plan Updates – 2014 & 2016 4. Climate Change Research Plan - 2015 5. Climate Change Symposium – August 2015, Upcoming 2017 • FREP has partnered with the Air Resources Board to prioritize research to best understand and address knowledge gaps and explore mitigation measures related to nitrous oxide emissions associated with CA agriculture - Ongoing • Establishment of CDFA's Office of Environmental Farming and Innovation (OEFI). OEFI houses several incentive programs related to reducing agricultural greenhouse gas emissions and strengthening agricultural resiliency to climate change – 2016

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<p>3. Recognition for Innovative Growers</p>	<ul style="list-style-type: none"> ➤ Grower Case Studies <ul style="list-style-type: none"> • Database of growers and ecosystem services provided by farms is on CDFA's website; CDFA Ecosystem Services Database – September 2013 • Several examples of grower highlights on CDFA's Planting Seeds blog include: 1) California State Board of Food and Agriculture member Don Cameron on climate change – from the Desert Sun; 2) Strawberry Fields... Forever; and 3) Nature's Candy ➤ A Food-focused Media Campaign ➤ A CDFA "Climate Change Adaptation" Award <ul style="list-style-type: none"> • An agricultural category for the California GEELA awards was created to recognize environmental stewardship efforts – 2015
<p>4. International Information Sharing and Grower-to-Grower Exchange</p>	<ul style="list-style-type: none"> ➤ International Grower-to-Grower Exchange <ul style="list-style-type: none"> • Climate Smart Agriculture Delegations organized by CDFA went to the Netherlands and Israel. Secretary Karen Ross also discussed climate change in Vietnam as part of a trade delegation. Secretary Ross documented the trips and the information shared in CDFA's Planting Seeds Blog – 2015, 2016 <ol style="list-style-type: none"> 1. Learning from the Dutch – Climate Smart Ag delegation lands in the Netherlands 2. In the Netherlands – The Taste and Feel of Climate Smart Agriculture 3. Delivering on Climate Smart Agriculture 4. Climate Smart Israel – California delegation set to learn about conservation strategies in a semi-arid land 5. Climate Smart Israel – a report from Secretary Ross 6. Climate Smart Israel – a delegation update from Secretary Ross 7. Climate Smart Israel – the Negev Desert 8. Climate Smart Israel – to Jerusalem and the Sea of Galilee 9. Climate Smart Israel – a visit to the 'Financial Innovations Lab' 10. Secretary Ross discusses trade and climate change in Vietnam • Climate Smart Agriculture Webinar Series was initiated with the Netherlands in June 2016 with the first topic of dealing with salinity. The webinar was popular, with more registrants than could be accommodated. There were international participants.

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5. Establish an Online Research Needs Forum	<ul style="list-style-type: none"> ➤ Online Research Needs Forum <ul style="list-style-type: none"> • Climate Smart Agriculture webpage may include database of BMPs that promote climate change resilience along with an interactive forum—in development • CDFA's Fertilizer Research and Education Program (FREP) has an online database that summarizes findings from research funded by FREP and nutrient guidelines for 22 crops covering over two-thirds of irrigated agricultural land in CA.
6. Pest and Beneficial Species Outreach	<ul style="list-style-type: none"> ➤ Outreach to the Public about Threats as well as Beneficials <ul style="list-style-type: none"> • 21st Century Invasive Pest Management Symposia – 2011, 2012, 2013 • Role in the Invasive Species Council of California - Ongoing • Pest profiles and fact sheets are provided on CDFA Plant Health and Pest Prevention Services webpage - Ongoing • Presentation at California Association of Pest Control Advisors (CAPCA) Annual Conference 2014 on climate change impacts on pests and the recommendations of the Climate Change Consortium for specialty crops. • Partner in the Don't Pack a Pest Campaign • Partner in the Buy It Where You Burn It – Campaign of the Firewood Task Force • Citrus Tree Pest and Disease Outreach to the public and growers • USDA Hungry Pests curriculum role out at Mira Loma High School • Outreach at various events such as Farm to Fork festival, Mountain Mandarin festival and Native American Day
7. Flood Risk Outreach	<ul style="list-style-type: none"> ➤ Post Resources Regarding Flood Risk ➤ Distribute Maps that Predict Movement of Flood Plains
8. Interagency Habitat Restoration Projects	<ul style="list-style-type: none"> ➤ Identify Opportunities to Create Habitat for Native Pollinators
9. Climate Change Adaptation Conference	<ul style="list-style-type: none"> ➤ Statewide Conference on Climate Change Adaptation <ul style="list-style-type: none"> • California Adaptation Forum 2014 which included agriculture panels • The State hosted an California Climate Symposium in 2015 focused on adaptation • The next California Climate Change Symposium planned for 2017

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10. Participation of Agricultural Interests in Integrated Regional Water Management Process	<ul style="list-style-type: none"> ➤ Inclusion of Grower Interests <ul style="list-style-type: none"> • Development of joint water/energy incentive program with DWR – Fall 2016 • Email of Climate Change Consortium report and recommendations to each IRWM statewide - Completed 10/21/13
11. Review Regulatory Barriers	<ul style="list-style-type: none"> ➤ Perform a Review of Regulatory Barriers <ul style="list-style-type: none"> • This is one function of Environmental Farming Act Science Advisory Panel – Ongoing
12. Farmland Conservation	<ul style="list-style-type: none"> ➤ Promote Farmland Conservation to Increase Agriculture's Resilience <ul style="list-style-type: none"> • CDFA participation in the Strategic Growth Council and Sustainable Agricultural Lands Conservation Program development • Whitepaper on the Benefits of Farmland Conservation posted to CDFA website – Summer 2015 • Research on the impacts of various land use change is identified as a research priority in the CA Climate Action Team's Research Plan – February 2015 • Farmland Conservation activities recommended in: <ol style="list-style-type: none"> 1. AB 32 Scoping Plan Update 2. Safeguarding California 3. Statewide Climate Change Research Plan

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13. Improve Growers' Ability to Adapt to Climate Change	<ul style="list-style-type: none"> ➤ Promote New Technologies <ul style="list-style-type: none"> • Healthy Soils Initiative in development – Fall 2016 ➤ Incentivize Improved Water Management <ul style="list-style-type: none"> • State Water Efficiency and Enhancement Program (SWEEP) grants provided for on-farm water conservation - \$33 million awarded since 2014 • Coordination with DWR on a joint RFP to combine SWEEP funding with Proposition 1 funding in order to increase water conservation in conveyance and on-farms – 2015, 2016 ➤ Scale Best Management Practices (BMPs) to All Sizes of Farms <ul style="list-style-type: none"> • Work with USDA NRCS, Colorado State University and other partners to make COMET Planner available – 2015 • Investment in COMET Farm to add top 10 specialty crops to COMET Farm – 2015, 2016 • CDFA's Fertilizer Research and Education Program promotes improved nutrient and water management technologies through an annual conference and sponsoring research. Current FREP research priorities include funding the development of California baseline information for biochar use, the study of barriers to adoption of better management practices and promoting adoption of BMPs with growers. - Ongoing
14. Secure Funding for Pest Programs	<ul style="list-style-type: none"> ➤ Maintain and Secure Additional Funding for Pest Exclusion and Detection Programs <ul style="list-style-type: none"> • CDFA's Division of Plant Health and Pest Preventions Services (PHPPS) pursued Farm Bill section 10007 funding, Specialty Crop Block Grant, and Technical Assistance for Specialty Crops grants to maintain and secure additional funding for pest programs. In Fiscal Year 2015/2016 PHPPS brought in \$56 million in federal funds.
15. Marketing Efforts	<ul style="list-style-type: none"> ➤ Promote and Market California Brands <ul style="list-style-type: none"> • CDFA's Office of Farm to Fork, which was established in 2014, hosts a California Farmer Marketplace to connect California farmers with buyers. Regional specialty crops are identified. • Secretary Ross has participated in trade delegations to China, Vietnam, and Mexico.

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<p>16. Economic and Environmental Studies of the Costs, Benefits, and Risks</p>	<ul style="list-style-type: none"> ➤ Crop Relocation <ul style="list-style-type: none"> • A request for research proposals in regards to this topic was Included in the 4th Climate Change Assessment Request for Proposals - Fall 2015 • A research proposal was selected for funding as part of the 4th Climate Change Assessment, <i>Economic and Environmental Implications of California Crop and Livestock Adaptation to Climate Change and Climate Policy</i>. The study will be completed by a team of researchers from University of California ➤ Hothouse/Greenhouse Production ➤ Water Management <ul style="list-style-type: none"> • FREP has funded BMP development through the grant research program. Additionally, FREP has funded numerous projects on irrigation and fertilizer use efficiency. –Ongoing ➤ Habitat Provision in Relation to Food Production and Food Safety <ul style="list-style-type: none"> • CDFA has provided funding through the USDA Specialty Crop Block Grant Program to projects that benefit native pollinators.
<p>17. Research Plots for Experimental Study</p>	<ul style="list-style-type: none"> ➤ Locate Research Plot Space for the Study of Cultural Practices <ul style="list-style-type: none"> • USDA Specialty Crop Block Grants distributed through CDFA specifically request research that promotes climate change adaptation for specialty crops in the Notice of Funding Availability (or RFP). • FREP has funded multiple projects to address research on cover cropping as it relates to water quality and irrigation efficiency and uniformity. - Ongoing
<p>18. Crop Breeding</p>	<ul style="list-style-type: none"> ➤ Promote Research on Crop Breeding for Traits that Promote Climate Change Adaptation <ul style="list-style-type: none"> • <i>Salt-Tolerant Lettuce and Spinach Varieties</i> –Specialty Crop Block Grant Project funded in 2013
<p>19. Improve Honey Bee Health</p>	<ul style="list-style-type: none"> ➤ Identify Methods and Products to Improve Honey Bee Health <ul style="list-style-type: none"> • CDFA's Plant Health and Pest Prevention Services held the first Healthy Pollinators Working Group meeting in 2015.

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20. Study Impacts of Saltwater Intrusion	<ul style="list-style-type: none"> ➤ Study Saltwater Intrusion on Agricultural Lands <ul style="list-style-type: none"> • Saline agriculture was on focus of the Climate Smart Agriculture delegation to the Netherlands in 2015. • CDFA and the Netherlands hosted a joint webinar regarding management practices for salinity • Specialty Crop Block Grant award for projects concerning salinity include <i>Micro Calorimetry for Rapid Assessment of Specialty Crop Salinity Tolerance</i> and <i>Salt-Tolerant Lettuce and Spinach Varieties</i> - 2013
21. Pest Forecasting	<ul style="list-style-type: none"> ➤ Adopt Pest Forecasting Tools <ul style="list-style-type: none"> • USDA Specialty Crop Block Grants distributed through CDFA specifically request research that promotes climate change adaptation for specialty crops in the Notice of Funding Availability (or RFP) • Included in the Safeguarding Implementation Plan of fall 2015 as planned activity. Look for climate change correlation within CDFA's internal pest detection database; investigate available tools for pest forecasting. • Report a Pest App is a way for CDFA to collect data on pest species in CA and facilitates citizen participation. • Pest Rating Regulations adopted in 2015 defines the criteria and process of evaluating pests including pest dispersal potential.
22. Augmentative Biological Control	<ul style="list-style-type: none"> ➤ Study Opportunities in Augmentative Biological Control
23. Crop Fertility	<ul style="list-style-type: none"> ➤ Determine Effects of Climate Change on Fertilization and Pollination
24. Weather Information	<ul style="list-style-type: none"> ➤ Compile a List of Grower Needs for up to 21-Day Forecasts <ul style="list-style-type: none"> • The need to make develop weather and climate forecasts on an extended time frame and specific to grower information needs was included in the California Fourth Climate Assessment Request for Research Proposals
25. Field Level Monitoring Tools	<ul style="list-style-type: none"> ➤ Develop a List of Grower Needs for Vegetation and Pest Information