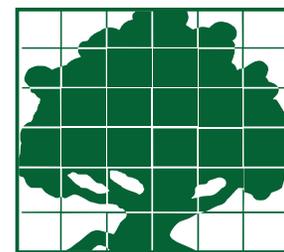


# Agricultural and Resource Economics UPDATE



GIANNINI FOUNDATION OF AGRICULTURAL ECONOMICS

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## Climate Change: Challenges to California's Agriculture and Natural Resources

### Special Issue

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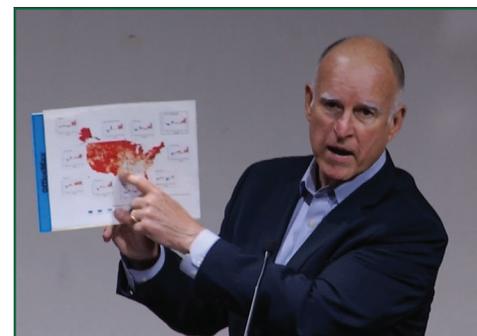
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California's ongoing drought is extraordinary and one of the worst in state history. Recently, Stanford University scientists reported that the drought may be linked to global climate change. This special issue of *ARE Update* summarizes a one-day Forum on climate change and associated challenges facing California's agriculture and natural resources, held in Sacramento in May 2014. California's Governor Jerry Brown addressed the Forum and he stressed the importance of both reducing carbon emissions, and at the same time devising ways to adapt to climate change.

The United Nations Intergovernmental Panel (IPCC) 5th assessment of the published literature on climate change concluded that some of the worst impacts of climate change will be in agriculture and these impacts are likely more serious than what was believed earlier. We all live downstream from agriculture and agriculture is truly the "canary in the coal mine" when it comes to climate change.

In this issue, one of the leading climate scientists in the nation, Benjamin Santer from Lawrence Livermore National Laboratory, distills the scientific evidence into layperson's terms and describes the most likely impacts of climate change on California.

Maximilian Auffhammer notes that climate change is a "slow-moving process" that offers the agricultural industry a window of opportunity in dealing with climatic uncertainties. Professor Auffhammer points out there are few studies that have



*Governor Edmund G. Brown, Jr. addressed the Giannini Foundation Climate Change Forum on May 19, 2014.*

measured the climate sensitivity of California's most important crops.

Given the lack of global policies to reduce carbon emissions, adaptation may be necessary for agriculture. In a very interesting article, Professors Olmstead and Rhode explain the history of how U.S. agriculture has adapted to past disease and pest shocks. Some crops have also moved geographically, confronting a new climate.

One of California's most crucial challenges will be to maintain its water security. Richard Howitt emphasizes that moving forward, California must adjust its management of water to reflect the realities of climate change.

David Zilberman and Scott Kaplan discuss the broad economics of climate change on global food security and agricultural production and cropping systems. They stress that some agricultural regions will gain from climate change, and others will lose. On net, California agriculture may lose, especially in the coastal and delta areas, and the southern portion of the state.