

Sustainable Nutrition Security in the US: The Impacts of Climate Change on U.S. Fruit & Vegetable Production



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Improving data and modeling approaches for fruits and vegetables in order to support assessments of climate and water system impacts on sustainable nutrition security

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Fruits and vegetables play an essential role in nutritious diets, but the medium- and long-term prospects for continued increases in production may be threatened by the combination of ongoing climate change, loss of freshwater availability, and competition for other resources. While there have been a growing number of model-based assessments looking at climate change impacts on staple crops, there have been relatively few studies on fruits and vegetables. There is a need to fill that void using a novel integrated modeling approach to characterize future availability and price of representative fruits and vegetables in key geographies.

On 30-31 July 2015, the ILSI Research Foundation's Center for Integrated Modeling of Sustainable Agriculture & Nutrition Security, UC Davis' World Food Center, the Agricultural Model Intercomparison and Improvement Project, and the Southeast Climate Consortium held a workshop at UC Davis. Twenty-one participants from public and private sector organizations shared a range of perspectives and experiences on what is needed for a model-based sustainability assessment of future domestic production, availability, and price for representative fruits and vegetables.

The workshop focused on four main points: prioritization of fruit and vegetable

crops for the assessment, global and domestic modeling approaches and challenges, technical resource requirements for conducting the work, and achievable timing for such an assessment.

Participants identified 13 fruit, vegetable and tree nut crops for the sustainability assessment. Mechanistic simulation models and statistical methods will be used depending on the crop being assessed. Participants identified the specific environmental, hydrologic and agronomic data that should be collected, and acknowledged that sourcing these data will be a challenge and will require continued stakeholder participation from grower associations, university researchers and the private sector. Based on current data availability, this first assessment will focus on production of these 13 crops in the United States but will provide a model for similar assessments in other geographies, and potentially for other crops as well.

The assessment will be critical for the development and prioritization of potential adaptation strategies by stakeholders from the public and private sector. This is essential to ensure continued increases in the availability of fruits and vegetables at affordable prices, thereby helping to maintain sustainable, nutritious food supplies.

The ILSI Research Foundation improves environmental sustainability and human health by advancing science to address real world problems.

The ILSI Research Foundation's programs in nutrition, toxicology, risk assessment and agriculture are informed and strengthened by the deliberate inclusion of international, multi-sectoral expertise and perspectives.

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The World Food Center at UC Davis leverages excellence in agriculture, food & health research for greater societal impact on food and health.

The Center serving as a focal point for deepening and broadening the university's collaboration with partners, convenes leaders to shape strategy and policy, and connects research to society and the marketplace.

For more information, please visit: www.worldfoodcenter.org or contact worldfoodcenter@ucdavis.edu.

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