

## **1ST PROFESSIONAL DEVELOPMENT WORKSHOP HELD AT LAWRENCE LIVERMORE NATIONAL LAB (LLNL)**

**Take 25 wide-eyed resource conservation professionals; mix with a tinge of cool, overcast weather, and sprinkle with a lot of learning, and what do you get?**

**A first-class SWCS CA/NV Chapter Professional Development Workshop! That's correct; Chapter President Lisa Hokholt found that perfect recipe for an experience that all participants will be talking about for a while.**

Seventeen members and eight non-members participated in the Chapter's professional development opportunity workshop held in Livermore on October 30. The workshop included a tour of the National Ignition Facility at the LLNL where laser beams are used to research fusion products as a source of usable energy. Founded in 1952, LLNL is managed by the University of California for the US Department of Energy's National Nuclear Security Administration. And has a mission to ensure national security and apply science and technology to the important issues of our time. In addition to advanced nuclear and defense research, LLNL is now applying its considerable scientific resources to better understand and find solutions to address climate change.

Four speakers introduced by Chapter President Lisa Hokholt presented the following topics on the effects of climate change on soil and water resources in California's Agricultural landscape:

**Investigating the Changes in Climate, Water Resources and Perennial Crops in the Western United States** by **Celine Bonfils**, Ph.D., from the Program for Climate Model Diagnosis and Intercomparison Division. She related how climate models that better represented more irrigation, higher yielding crops, and less tillage, predicted lower temperatures than previous climate models. Irrigation cools the surface by increasing the amount of energy used to evaporate water rather than heat the land. Another finding was the increased albedo from reduced tillage had roughly as much cooling effect on global climate as the increased soil carbon sequestration. A key finding of study with serious implications for California Agriculture is that there is a high likelihood of significant yield reductions of major cash crops as a result of global warming.

The Affects of Climate Change on Land Use and **Hydrology** by **Reed M. Maxwell**, Ph. D., Deputy Group Leader of the Hydrologic Sciences Group, Atmosphere, Earth and Energy Sciences Division. His studies in the non-irrigated Little Washita Watershed in Okalahoma predicted increased temperatures will reduce the amount of available water for plants and less percolation into the underground water table. Vegetation types would shift and the river flow would slowly be reduced due to less runoff and less water coming from the underground water table. Climate models predict global warming will increase wintertime river flows and reduce spring and summer flows.

**New Conservation Tools to Consider with Regard to Greenhouse Gasses and Carbon Sequestration** by **Diane Holcomb**, State Resource Conservationist, USDA Natural Resources Conservation Service, Davis, CA.

New technologies are being introduced to NRCS staffs to estimate carbon sequestration by plants and include this in client's conservation plans. Clients would be able to market carbon credits associated with their farming or ranching operations for additional income. Carbon trading is already being conducted in the Mid-West. Other improvements are under development to better predict soil erosion rates as changes occur in average annual temperature and rainfall.

**Linking the Future of Climate Change and Agriculture in California** by **Ladi Asgill**, Agricultural Economist, Sustainable Conservation, Modesto, CA. He emphasized that more direct assistance and collaboration will be needed between agricultural industry, regulators, and government agencies to successfully implement changes in farming practices intended to address the expected changes resulting from global warming. Agricultural producers need to be kept better informed of research findings and active participants in decisions about proposed implementation strategies. An important recommendation was that agricultural producers in introducing renewable energy projects need help in overcoming a myriad of regulatory and permit challenges.

Chapter members hope the success of this workshop will spur the Chapter to continue offering a professional development workshop each Fall.

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