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## **‘Global Warming’ hearing spotlights impacts on agriculture**

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In the wake of last Friday’s 219-212 House vote for the Waxman/Market climate and energy bill, it’s worth reviewing the first in a new series of House hearings on climate change focused on global warming’s “Impacts on Agriculture and Forestry.”

Now that the House has acted by passing H.R. 2454, the American Clean Energy and Security Act, the next step is up to the Senate which is expected to begin work on its own climate-change legislation in September. Waxman/Markey bill co-sponsor Rep. Ed Markey (D-MA), Chair of the House Select Committee on Energy Independence and Global Warming, used his June 18th “Impacts” hearing to warn that:

- “if climate change legislation is delayed, the greatest immediate losses will be felt by the farmers, ranchers and forest owners who already are suffering from the heat, drought, flooding, forest fires, and weed and insect pressures directly related to global warming.”

Markey opened the Impacts hearing by pointing out that “farmers and foresters are already suffering the consequences of climate change.” Quoting from the administration’s recent “Global Climate Change Impacts” report, he said “the growing season now starts two weeks earlier, impacting farming and crops in rural America. Heavy downpours in the last 50 years increased 67 percent in the Northeast and 31 percent in the Midwest. Unsurprisingly, this time has been marked by record flooding in those regions. Yet in the rapidly growing Southwest, they face a different climate challenge as water supplies are becoming increasingly scarce.” Markey concluded that “The serious consequences for agriculture and forestry provide yet another reason to take action now to curb global warming pollution.”

One after another, the hearing’s expert witnesses backed up Markey’s points with more detail. USDA Supervisory Plant Physiologist Dr. Jerry Hatfield pointed out a range of impacts, some counter-intuitive and all adding up to more problems facing farmers:

- “Extremes of temperatures can have devastating effects on plants. Plants are also dependent upon the water that is supplied to them by precipitation or irrigation and when these amounts are either in excess or in deficit there are negative impacts on plant growth.”

- “Warmer temperatures cause plants to progress through their stage of development at a rate which does not allow for maximum expansion of leaves, stems, or fruits.”
- “The temperature ranges for pollen survival are lower than those for vegetative or reproductive development; and exposure of pollen to high temperatures can destroy the pollen and reduce the production of seed or fruit.”
- “When soils are saturated and have excess water, not only is there an increased potential for flooding, but also a negative impact on plant growth because excess water decreases plant growth from the deprivation of oxygen in the soil.”
- “Increases in precipitation intensity will increase erosion from agricultural lands unless adequate protection of the soil surface is provided by conservation tillage, crop residues, or cover crops.”
- “Increasing CO<sub>2</sub> concentrations benefit weeds even more than crops and cause them to grow more quickly and produce more seed.”
- “An interesting example of the impacts of changing CO<sub>2</sub> on plant growth has been observed in rangeland plants. Increases in CO<sub>2</sub> cause the plant to grow more quickly; however, in doing so the growth of the plant exceeds the capacity of the root system to absorb nitrogen from the soil. As a consequence there is a decline in the protein content of the grass. Since these rangeland systems provide food for grazing animals there is a less nutritious food source for these animals.”
- “Extremes at either hot or cold have negative impacts on animals. . . high temperatures and humidity reduce the feed intake of animals which in turn reduces the rate of meat, milk, or egg production.”

Heather Cooley, Senior Researcher at the Pacific Institute, echoed Hatfield, explaining that “The agricultural sector is particularly vulnerable to climate change because it is directly tied to land and water resources. Even modest changes in temperature and precipitation patterns, the length of growing seasons, or the frequency of extreme events will have large consequences for many farmers.” She concluded that since “Many of the impacts of climate change are now unavoidable,” federal policy urgently needs to include adaptation policies – such as not only reducing the dangerous drawdown of aquifers but also developing new systems to store storm water runoff in depleted groundwater basins “for use during dry years.” She also called for Farm Bill changes to “Reduce or realign subsidies from low-value, water-intensive crops to less water-intensive crops.”

Calling for new policies to deal with seriously overstocked and undermanaged federal forests, Tom Troxel, Director of the Black Hills Forest Resource Association, pointed out that “Forests can be either a sink for CO<sub>2</sub> or a source of CO<sub>2</sub>. Reducing the number and severity of wildfires may be the single most important short-term action we can take to lower green house gas emissions.”

To read the testimony from the House Select Committee on Energy Independence and Global Warming hearing on “Global Warming’s Growing Concerns: Impacts on Agriculture and Forestry,” go to: <http://globalwarming.house.gov/pubs>

To read the complete 190-page “Global Climate Change Impacts in the United States” report, individual chapters, or summaries, go to: [www.globalchange.gov/usimpacts](http://www.globalchange.gov/usimpacts)