



ERS' climate change research program is analyzing potential farmer, domestic and international market responses to a new climate regime, with a focus on the role of risk management tools and other policy options for addressing potential impacts. A second line of inquiry focuses on the economic, environmental and land use implications of alternative policy and market-based approaches to addressing climate and energy concerns. The ERS climate change research program builds on extensive expertise in the economics of land use and land management, technology adoption, conservation program design, environmental markets, biofuels, benefits of public investment in R&D, international trade and the nature of commodity markets.

What are the market effects of climate change and adaptation in the agricultural sector?

Farmers may adapt to changing climatic conditions by altering their farming practices and by changing the geographic distribution of crop and livestock production. ERS is examining how farmers' responses to a changing climate –including changes in yields, pest invasions and shifting regional water balances – could affect domestic and global crop and livestock production and trade patterns, input use, economic returns and environmental outcomes. This research effort benefits from and contributes to the Agricultural Modeling Inter-comparison Project (AGMIP).

What are the economic implications of policy options for addressing climate-related increases in risk, costs and opportunities?

The prevalence of droughts, floods and invasive species are all predicted to increase with a changing climate. ERS research will examine current and potential role of government responses, including support policies, conservation programs, crop insurance and disaster payments, in reducing or compensating for damages and, conversely, the extent to which increasingly risky growing conditions might increase the demand for those programs. The potential benefits of and opportunities for public and private R&D on technologies that can facilitate adaptation by farmers to changing and more variable weather conditions will also be considered.

What are the economic and environmental implications of increased competition for land associated with climate and energy policies?

Climate, energy and agricultural policies interact in a multitude of dimensions and through complicated linkages, and each places significant pressures on land use decisions. ERS research is analyzing the implications of dueling pressures on the land base associated with increased demand for carbon sequestration and for bioenergy feedstocks, while also accounting for changing demands for global food production. As an energy-intensive sector, higher energy costs will affect global and domestic crop land allocation, markets, and trade. ERS research is analyzing the effects of higher energy prices on agriculture markets under alternative policy scenarios.

What are the economic and environmental implications of design options for GHG markets?

ERS research will study potential economic implications of alternative designs for carbon offset markets. Farmers' participation in these markets would likely be voluntary, so policy design details will influence participation decisions, the kinds of farming practices and land uses that farmers offer, and the economic efficiency and environmental performance of the offset market.