

Reponses to Studies Published on *ScienceXpress*

Two articles published February 7 on *ScienceXpress*, the Web site of *Science* magazine, received significant media attention regarding the sustainability of ethanol and the future of biofuels as alternatives to petroleum. The two studies since have been subject to a backlash of criticism by experts in the biofuels field. Gathered below by topic is a collection of comments and thoughts from some of the leading experts on the two analyses [*Use of U.S. Croplands for Biofuels Increases Greenhouse Gases Through Emissions from Land Use Change* by Timothy Searchinger et al] and [*Land Clearing and the Biofuel Carbon Debt* by Joseph Fargione et al].

Methodology

"Many critical factors determine GHG emission outcomes of land use changes. First, we need to clearly define a baseline for global food supply and demand and cropland availability without the U.S. biofuels program. It is not clear to us what baseline Searchinger et al. defined in their modeling study....The Searchinger et al. study demonstrated that indirect land use changes are much more difficult to model than direct land use changes."¹

Michael Wang

Center for Transportation Research, Argonne National Laboratory

Zia Haq

Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy

"Life cycle analysis (LCA) is data driven, but these two papers do not depend much on actual data. Instead an assumption-driven economic model is linked to land use decisions and these land use decisions are in turn linked to GHG emissions through another undifferentiated, assumption-driven model.....There are no real, verifiable data in either of these papers on the land use changes that actually occur as more corn is processed to ethanol – hence these papers are not LCA studies. They are in fact highly speculative and uncertain scenarios for what might happen as a result of increased demand for corn grain....we should not make biofuels policy decisions on such an uncertain scientific foundation."²

Dr. Bruce Dale

Department of Chemical Engineering and Materials Science

Michigan State University

Renewable Fuels Standard

"The dynamics the authors have identified are undeniable – if you clear land to grow crops for biofuels you have to account for the emissions from that clearing.....Fortunately, we knew about these dynamic before yesterday, and we've won a preemptive victory in getting the dynamics written into the legislation in the form of the land-use safeguards and minimum lifecycle GHG standards."³

Nathanael Greene

Senior Policy Analyst, Natural Resource Defense Council

¹ Response to February 7, 2008 Article, *Sciencexpress*, February 14, 2008

² Letter to the Editor, Submitted to *Sciencexpress*, February 16, 2008

³ Biofuels: Not Quite Dead Yet, Thankfully, Nathanael Greene's Blog, February 8, 2008

“Concerning the frenzy over the recently released studies regarding biofuels cropland and its impact on greenhouse gases, it’s important to note that the energy bill of 2007 and its renewable fuel standard have specifically addressed these issues. The bill, signed into law, sets lifecycle global warming pollution reduction standards for all new biofuels. The architects of the legislation anticipated hurdles and created mechanisms for addressing them.”⁴

Douglas A. Durante
Executive Director, Clean Fuels Development Coalition

Biofuels Potential

“Biofuels are providing cleaner and sustainable alternatives to fossil fuels, as indicated in a number of emerging studies from both private and public entities. Unfortunately, none of these conflicting reports have received the same caliber of attention as the two reports published in Science.”⁵

Brent Erickson and Sharon Bomer
Executive Vice Presidents, Biotechnology Industry Organization

“Do (the) Science articles mean that all biofuels are bad and that the recently passed RFS is going to harm the climate? The short answer is no and no. It remains relatively easy to construct theoretical scenarios where biofuels contribute significantly to our transportation energy needs in a low-carbon way, avoiding the direct and indirect land-use traps addressed in the articles.”⁶

Nathanael Greene
Senior Policy Analyst, Natural Resources Defense Council

Cropland Use

“When it comes to increasing biofuels production, analyzing its impact on land use is a new and complicated field. We discourage the scientific community from rushing to judgment simply to satisfy political timetables...The fact is the production of biofuels such as corn ethanol – an evolving industry- is improving each year. We are seeing greater processing efficiency and increased crop production per acre of land. New corn hybrids are under development that will increase the amount of ethanol produced per bushel, reducing the acreage needed for production, just as co-products are becoming an important feed source for the livestock industry.”⁷

Ron Litterer
President, National Corn Growers Association

“Searchinger et al. used the historical land use changes that occurred in the 1990s in individual countries to predict future land use changes in those countries. This assumption is seriously flawed by predicting deforestation in the Amazon and conversion of grassland into crop land in China, India, and the United States. The fact is: deforestation rates have already declined through legislation in Brazil and elsewhere. In China, contrary to the Searchinger et al. assumptions, efforts have been made in the past ten years to convert marginal crop land into grassland and forest land in order to prevent soil erosion and other environmental problems.”⁸

Michael Wang
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⁴ Letters, *The Hill Newspaper*, February 14, 2008

⁵ Letter to the Editor, *New York Times*, February 15, 2008

⁶ Biofuels: Not Quite Dead Yet, Thankfully, Nathanael Greene’s Blog, February 8, 2008

⁷ Letter to the Editor, *Washington Post*, February 18, 2008

⁸ Response to February 7, 2008 Article, *Scienceexpress*, February 14, 2008