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## Biofuels: Good and Bad

Megan Neve

University of Nebraska-Lincoln, meganneve93@gmail.com

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Megan Neve - [meganneve93@gmail.com](mailto:meganneve93@gmail.com)

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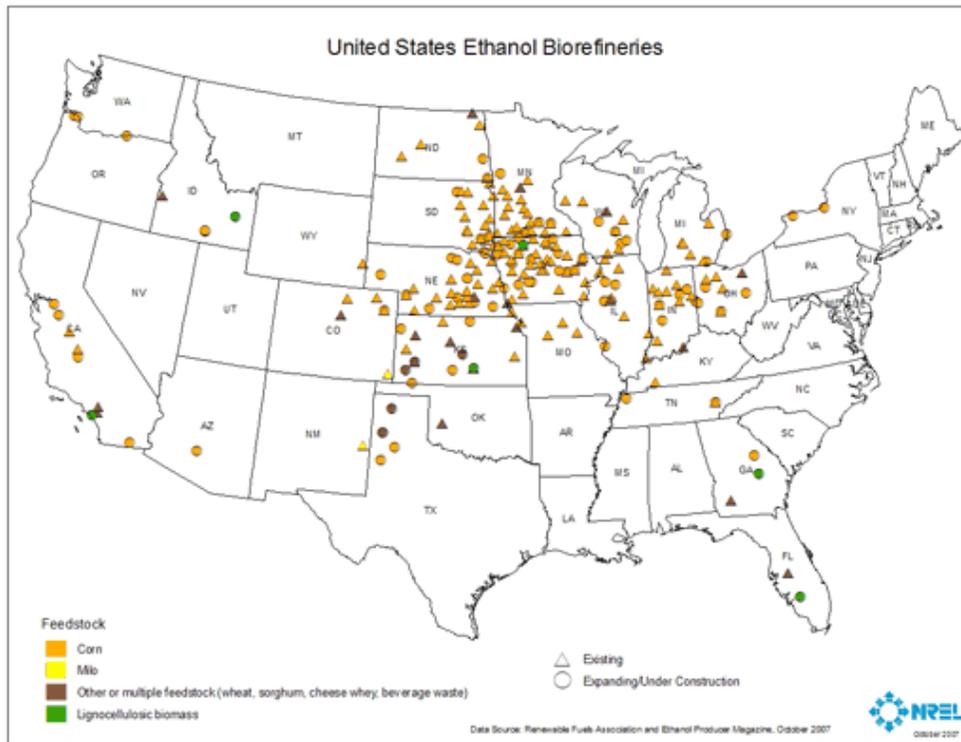
16 Dec. 2014

## Biofuels: Good and Bad

Biofuels are central to President Obama's energy goals. The United States needs to rely less on foreign oil and biofuels are one way to accomplish this goal. Biofuels begin with solar energy captured by photosynthesis in plants and this energy is stored in those cells. These plants, often sugar cane and sugar beets, are then fermented to produce ethanol. It is stated on the White House website that biofuels are a "key" component to Obamas energy strategy. But too often we forget about the negative externalities of biofuels and the processes that make them useable for automobiles and other equipment. There are millions of people in developing nations whose lives depend upon the grains and crops that biofuels are made from, both for food and for job security. Planting these grains and crops strictly for biofuel production could harm the lives and prosperity of the world's rural and impoverished people.

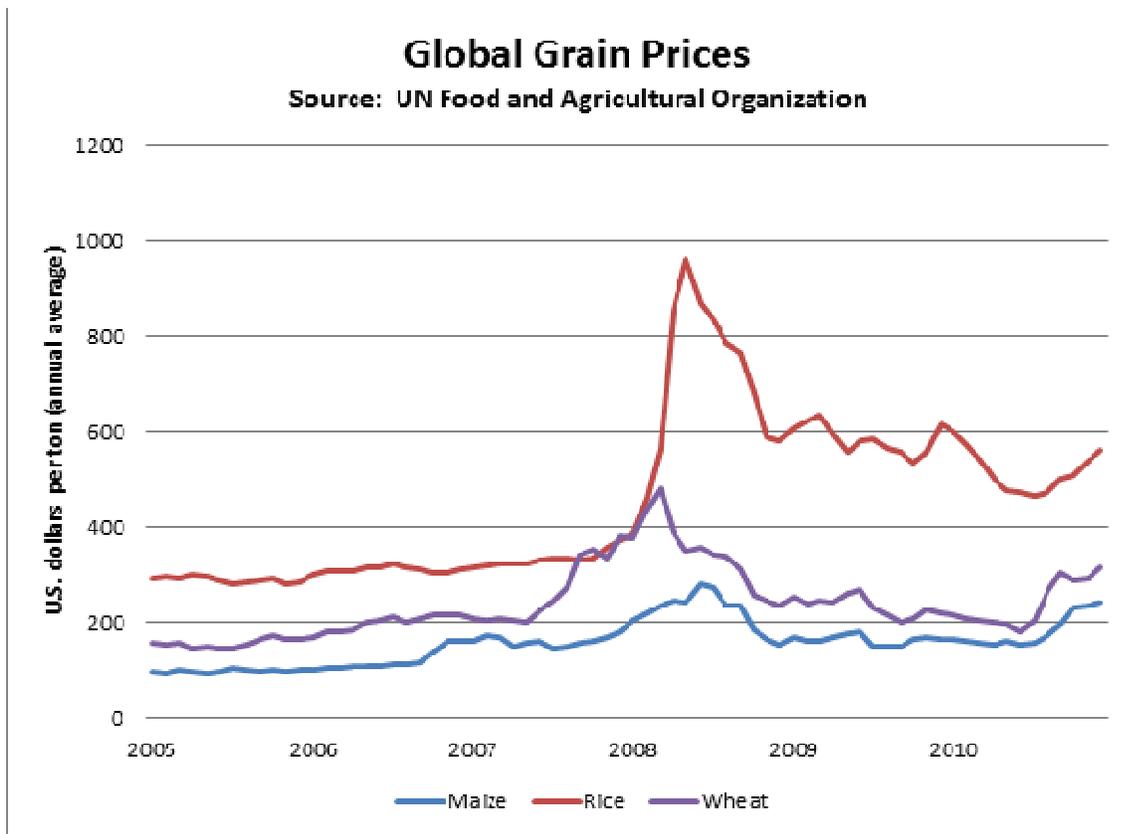
In this piece, I will explore the negative implications to biofuels, how developing countries will be affected and some renewable energy alternatives to biofuel production.

Since 2007, organizations such as the U.N. have been pointing out that biofuels may not be the best energy alternative. Sure, there are many benefits that can come from biofuels, but these benefits can be offset by rising food prices for the developing world. There are many trade-offs here between environmental sustainability and food security. In the past 20 years, environmentally focused events have failed to focus on the issues of food security while developing sustainability frameworks.



Source: [http://www.egnret.ewg.apec.org/Archive/me\\_united\\_states.html](http://www.egnret.ewg.apec.org/Archive/me_united_states.html)

Sure, biofuels are cleaner and cheaper to use for the world's energy needs, but producing biofuels also takes up the time and energy that it takes to plant agricultural fields for the starving people of the world. The International Food Policy Research Institute (IFPRI) estimates that biofuels account for 30% of the rise in grain prices. In an article by Benjamin Senauer, PhD of Applied Economics at the University of Minnesota, he points out that the World Bank president figures that 100 million more people go hungry due to these higher food prices. Senauer concludes that these data combined show that biofuels will be the reason that 30 million more people will be going hungry worldwide. This combination suggests that biofuels are responsible for 30 million more people going hungry in the world.



Sour

ce: [http://econwatson.blogspot.com/2011\\_01\\_01\\_archive.html](http://econwatson.blogspot.com/2011_01_01_archive.html)

It should also be noted that yes, biofuel production can create jobs in poor areas where most of the world's impoverished people reside, but local farmers with small-scale operations will take a hit because of the introduction of this new biofuel agriculture industry. Biofuel crops would also require large swaths of land to grow, an insane amount of irrigation and fertilizer application.

Biodiversity is another factor to consider while looking at the industry of biofuels. I would like to point out that woody biomass and the production of forests for biomass is tricky. Forests provide many natural services besides creating a woody biomass. Biodiversity and small vertebrate species are central to the success of forests, and reforestation could decrease populations of these small invertebrates in forest land that is planted simply to create biomass.

More research must be conducted in order to develop sustainable wood harvesting practices as well. Reforestation could have many negative implications that we do not think about right off the bat.

Algae is another source of a biofuel that I would like to explore here. The journal article published by the United States Department of Energy on Algal Biofuels points on some very convincing information. First, cultivating algae does not compete with agricultural land like reforestation and corn would. Algae can be grown in labs where variables that control growth can be readily adjusted for efficient yield. Secondly, algae is much more productive at creating biofuel products than soybeans. The article states that algae “can potentially produce 100 times more oil per acre than soybeans, or any other oil-producing crop”. If this is not enough evidence to consider using algae as an alternative to other crops producing biofuels, then here is another fact. Water is always a touchy resource, but algae is able to grow in many different types of water environments, such as saline aquifers and even wastewater from WWTP’s.

All in all, biofuels are a satisfactory energy alternative to our current dependence on foreign oil, but close attention must be paid to the benefits and costs of each type of biofuel. There are economic, social and environmental implications concerning each type of biofuel and I encourage you to explore the options. Reforestation and growing certain crops specifically to create ethanol is rather unproductive and does not help the world hunger issues at hand. But an energy alternative such as algae could be incorporated into a successful sustainability framework.

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