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Producing biofuels without raising the food price

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In Nebraska, as well as a lot of places in the world, the policies to improve the production of biofuels are viewed as big villains since the raw material used for biofuel production can compete with the production of food. A good example is the biofuel (ethanol) produced in the Midwest from corn. To understand the impasse – food versus fuel – and policies involved, it is necessary understand what biofuels are and to consider all the concerns involved during their production.

Biofuels can be defined as fuel produced from renewable biomass materialⁱ – biomass that usually comes from an agricultural product but may also include animal materials. They offer great promise for replacing fossil fuels. As ethanol and biodiesel, they can be used as a direct substitute for gasoline and diesel.

The main motivations for investing in biofuels are that they can contribute towards reducing dependency on imported oil, help respond to environmental concerns – reducing local air pollution and greenhouse gases (GHG) emissions – and stimulate the demand for domestic agricultural products.ⁱⁱ A benefit is that biofuels are able to maintain rural agricultural employment and food supply capability without the need for barriers to reduce imports since they create a greater incentive for agricultural production.

On the other hand, biofuels create a problem for feedstock and the agriculture land that they use. The intensified cultivation used for biofuel production affects much larger amounts

of land than fossil fuel extraction and can cause soil erosion as well as more severe pollution effects (such as water- and soil-contamination by fertilizer and pesticides).

Thinking primarily about food (the main concern), it is important to differentiate the two biofuels' generations. The "first-generation" biofuels are made from sugar, starch, and vegetable oil, so their raw materials come (in majority) from the same agriculture products that produce food. Because of that, the competition is inevitable in the destinations of crops to biofuel or food. In the case of "second-generation" biofuels, they can be manufactured from various types of biomass, but they still generate some concerns about the destination of planted areas.

In the U.S., ethanol (the most used biofuel) comes from corn, which makes the production a very critical variable in the world food equation. Today in this country, 40% of the corn crop is used to produce ethanol and less than 15% goes toward food and beverage production.ⁱⁱⁱ So the crops are used more for fuel than for food which makes the concerns about the competition justifiable. One way to offset the production of raw material between fuel and food is the creation of policies for controlling the market (production, selling and buying).

Inspired by arguments for energy security, supporting farm prices and improving air quality, the U.S. started subsidizing the production of ethanol (using corn as feedstock) in 1978. The first step was the Energy Tax Act^{iv}, and since this, ethanol receives tax credits and incentives in research and development that aren't so much significant but still present. The consequences of those policies were a drive up in food prices, deterioration of environmental resources by the intensification of crop production and increased smog in heavy traffic environments,^v which means we need to carefully decide how we create these policies – one example is to create policies to improve the agricultural production and to generate soil degradation.

The biggest problem is that these policies just increase the ethanol production and not the management of the crops, it means that policies do not delimit the way of the agricultural production. So instead of applying subsidies that could be retired when the market settles, policies of market should be implemented.

In conclusion, biomass production has to be done in “farming circles” by stimulating the family farm with mixed crops. The U.S. should create a policy that includes the market rules, ensuring the right production (without degrading the environment and emitting pollution) and food security. With specific policies, it is possible to allocate raw material to the fuels and to food without big impacts in both sectors (such as the rising price of foods) and both markets can be structured in harmony.

ⁱ Clean Energy Ideas. **“Biofuel Definition”**. http://www.clean-energy-ideas.com/energy_definitions/definition_of_biofuel.html. Accessed in 10/23/2012.

ⁱⁱ IEA – International Energy Agency. **“Biofuels”**. OECD Publications. France, 1994.

ⁱⁱⁱ CARTER, Colin; MILLER, Henry. **“Corn for Food, not Fuel”**. The New York Times, New York, July 30, 2012. <http://www.nytimes.com/2012/07/31/opinion/corn-for-food-not-fuel.html>.

^{iv} REIJNDERS, Lucas; HUIJBREGTS, Mark A.J.. *Biofuels for Road Transport - A Seed to Wheel Perspective*. Springer. London/UK, 2009.

^v PERRIN, Richard. **“Grain Ethanol – Why Consider Food for Fuel?”** University of Nebraska. NE, 2008.