



Can a Hungry World Afford Biofuels?

Canadian Foodgrains Bank – October 2008

Background

The use of crop plants to make liquid biofuels has increased rapidly over the past few years, and there are concerns that this may be pushing food prices beyond the reach of more people and thus increasing hunger. While the possible impact on hunger is our greatest concern at Foodgrains Bank, we are also aware of discussion about biofuels and energy security, environmental benefits, and farmers' livelihoods. This paper looks briefly at these issues and outlines a biofuel strategy that does not threaten food security.

Liquid biofuels are used mainly for vehicle fuel. Ethanol (to blend with or substitute for gasoline) is made from corn (maize), sugar cane, wheat and other grains. Bio-diesel (to blend with or substitute for diesel) is made from palm oil, canola, soy and other oilseed crops. Both of these are considered first-generation biofuels, in that they are made from food crops.

There is considerable interest in second-generation or cellulosic biofuels (made from straw, wood chips and other non-food products), but these are still in the early stages of development. More research is needed to see if they will be technically and economically feasible. There is also discussion about a possible third generation, using biotechnology to design crops just for biofuel production.

Dozens of countries are producing biofuels and/or growing crops for biofuel feedstocks, and many have implemented policies to encourage the industry. This has created an artificial market where supply is increased by subsidies and demand is increased by mandates.¹ If biofuels had to compete with fossil fuels outside this policy environment, the industry in many places would grow slowly, if at all. In 2007, governments around the world spent about US\$11 billion on biofuel support², with the US (mostly ethanol) and the EU (mostly bio-diesel) contributing the lion's share. Canada has committed to fund research and development in biofuels, and in June 2008, passed legislation to permit a mandate for biofuel content in all transport fuel. This legislation (Bill C-33) allows the federal government to implement regulations requiring 5% average ethanol content in gasoline by 2010, and 2% average biodiesel content in diesel and heating oil by 2012.

In the 2007/08 crop year, about 11% of the world's corn and about 7% of the world's oilseeds was used to produce biofuels.³ These figures are expected to increase as biofuel mandates take greater effect in various countries. The mandates set in the US and EU are so large they cannot be met by domestic production, but will require sizable imports from developing countries.⁴

Food security

It is now generally accepted that biofuel demand has increased food prices, though there is no consensus on how much. The US Department of Agriculture and lobby groups for the biofuel industry maintain that only about 3% of the rise in food prices is due to biofuels. However, the US President, in an April 2008

¹ Governments may subsidize biofuel production with tax credits or exemptions and/or grants for research or building factories. Governments may also implement mandates requiring all fuel sold to contain a certain percentage of biofuel.

² Comprehensive Framework for Action, July 2008, UN High Level Task Force on the Global Food Crisis

³ A Note on Rising Food Prices, Donald Mitchell, unpublished World Bank paper, April 2008

⁴ The Right to Food and the Impact of Liquid Biofuels. Asbjørn Eide, FAO Right to Food Studies, May 2008



speech, put the figure at 15%.⁵ One World Bank study said that 75% of the food price rise over the past 6 years was due to biofuels and “the related consequences of low grain stocks, large land use shifts, speculative activity and export bans.”⁶ In the middle of this pack is the International Food Policy Research Institute, which blames biofuels for 30% of the food price rise, but points out that they looked at direct effects only, not including speculation and actions taken by individual countries to restrict food exports⁷.

Demand for biofuels can influence food prices in several ways:

Direct purchase of foodstocks – Biofuel production competes with food uses for the same commodities (corn, sugarcane, edible oils from canola, palm, soy, etc). In the US, use of corn to make ethanol has gone from 5% to nearly 30%⁸ of the total crop in the past decade. Commodity prices have risen with the rapidly growing demands of the biofuel industry. Those rising prices take a toll for the world’s poorest. The World Bank reports that for each 1% rise in food prices, caloric intake among the poor drops 0.5%⁹.

Livestock feed costs – Grains and oilseeds make up a large part of livestock feeds, so the price of meat, dairy and eggs all rises when crop prices go up.

Crop and land substitution – As the demand for corn and other biofuel crops increases, farmers devote more land to corn and less to other crops, reducing their supply. Similarly, as the market price of one commodity (like corn) rises, consumers buy less of it and more of other foods. Thus the price of rice and other crops that are not used to make biofuels rises in response to biofuel demand. This “domino effect” is even leading to increased deforestation, as land-owners see more profit potential from annual crops than from intact forests.

Use of marginal land - Proponents of biofuels argue that biofuel crops can be grown on unused or marginal lands. While it is true that certain biofuel feedstocks (like the tropical shrub *Jatropha*) will grow on poor quality land, greater yields can be obtained on good land, so there is pressure for these crops to displace food crops. In some cases, the “unused” lands targeted for biofuel crops are communal areas used for grazing, harvesting of forest resources, or wildlife. In Ethiopia, thousands of hectares of elephant sanctuary were cleared for biofuel production.¹⁰ Until they were stopped by citizens’ protests in 2007, the government of Uganda was negotiating to give or sell thousands of hectares of rainforest to two companies to plant biofuel crops.¹¹ Destroying these areas increases the number of people depending on the market for their food, often with limited money to make purchases.

Energy

One reason industrial countries are so keen to develop biofuels is to reduce dependence on oil and oil-producing countries. Yet if all the corn grown in the US were made into ethanol, it would only meet 12% of that country’s transport fuel needs.¹² As corn acreage expands to meet biofuel demand, so too does

⁵ www.whitehouse.gov/news/releases/2008/04/20080429-1.html

⁶ A Note on Rising Food Prices, Donald Mitchell, unpublished World Bank paper, April 2008

⁷ High Food Prices: The What, Who, and How of Proposed Policy Actions. IFPRI, May 2008

⁸ High Food Prices: The What, Who, and How of Proposed Policy Actions. IFPRI, May 2008

⁹ How Biofuels could starve the poor. C. Ford Runge and Benjamin Senauer, Foreign Affairs, May/June 2007

¹⁰ Biofuels Development in Africa, report of UNCTAD XII Civil Society Forum, 19 April 2008.

¹¹ The New Scramble for Africa, Seedling magazine, July 2007.

¹² Food Versus Fuel in the United States. Mark Muller, Tammy Yelden and Heather Schoonover, IATP, September 2007.

use of fertilizers, which are made from fossil fuels.¹³ Ethanol also contains less energy per litre than gasoline, so it will take a greater volume of ethanol to travel the same distance. It has been calculated that once these factors are taken into consideration, Canada's 5% ethanol mandate will only reduce gasoline use by about 0.7%.¹⁴



Environment

It is claimed that biofuels produce fewer greenhouse gasses (GHG) than gasoline or diesel, so are better for the environment. However, there is much disagreement on this point. Most studies show a slight reduction in GHG gasses, but some indicate that biofuels produce more GHG than fossil fuels.¹⁵ The wide variation is also shaped by how it is processed and transported, what land use was displaced, and what assumptions the researchers used. Several Canadian-based studies have agreed that cellulosic ethanol may produce significantly less GHG than gasoline.

Farmers

Biofuels are generally seen as positive for farmers and rural development, as they increase demand for crops. Crop farmers in Canada and the US (especially those who grow corn) have benefitted from the biofuel boom. However, livestock farmers (who use grains and oilseeds as animal feed) have suffered as their costs have increased. As the end price of animal products goes up, consumers buy less, so demand goes down as well.

In developing countries, crop farmers benefit from higher crop prices, which are partly due to biofuel demand. However, many small scale farmers are net consumers of food. In the short term, higher food prices will likely make them poorer, as the extra income from their farms will be more than offset by the higher prices they pay for food in the market. Higher prices may help them in the long term, as farming becomes more profitable and net food consumers become net producers. This improvement in livelihood will be more likely if there are favourable local agricultural policies and infrastructure in place. These could include research, extension and financial services targeting to the needs of small farmers, and strong farm organizations to advocate for their interests.

Current assessments of global biofuel policies

There is a growing consensus among world leaders that the move toward biofuels should take a back seat to food security concerns, and that the current policy environment around biofuels (subsidies, mandates, etc) is driving biofuel developments too fast, and in unhealthy directions.

The UN High Level Task Force on the Global Food Crisis (July 2008) stated that "Biofuel policies ... require reappraisal in light of the food crisis.", and suggested that subsidies and tariffs for biofuels should be phased out. It called for an international consensus on biofuels, to put food security first, and promote research into biofuels that don't use food crops.

¹³ The "energy balance" of a biofuel is a measure of how much energy you have to put in (fertilizer, transport, processing, etc) to get one unit of energy out. For ethanol from corn, this is likely around 1.3 units of energy produced for each unit of energy used, though some researchers suggest it could be as low as 0.8.

¹⁴ Letter from National Farmers Union to Canadian Senate, Darrin Qualman, 25 June 2008, available from qualman@nfu.ca

¹⁵ The Ethanol Trap: Why Policies to Promote Ethanol as Fuel Need Rethinking. Douglas Auld, C.D. Howe Institute, July 2008.

When the G8 Leaders met in July 2008, they committed to: “ensure the compatibility of policies for the sustainable production and use of biofuels with food security, and accelerate development and commercialization of second generation biofuels”



The Right to Food Unit of the FAO (Food and Agriculture Organization of the United Nations) has stated that biofuel production threatens people's right to food in 3 ways: by increasing food prices, by causing land concentration, and by causing environmental problems.

The Terra Preta Forum (Civil Society Conference on the Food Crisis, June 2008) denounced large scale biofuels for export, but left the window open for local biofuel production to meet local needs.

Foodgrains Bank supporters expressed their views at a series of workshops in Ontario in April 2008. All agreed that food should take precedence over fuel, and most felt that the Canadian government should not invest any more money in biofuel development. There was also strong interest in exploring second generation biofuels.

Foodgrains Bank perspectives

The Canadian Foodgrains Bank affirms that:

1. The global biofuel industry is one of the factors causing food prices to increase and threatening food security for the poor.
2. The biofuel industry is largely driven by government policy, especially subsidies and mandates in the US and EU. The Canadian government has been a follower rather than a leader on biofuel policy. All government support for biofuels should be reduced and eventually eliminated.
3. The environmental benefits of first generation biofuels (compared to fossil fuels) are highly contested, with most unbiased research showing little or no benefit.
4. Biofuels are a mixed blessing for farmers. Net food producers, especially grain and oil-seed producers stand to benefit, but livestock producers and many small scale farmers in developing countries are expected to experience negative impacts.
5. Biofuel developments should be opposed where they reduce poor people's access to food, either through diversion of land and water, through price increases, or through environmental damage.
6. Biofuel developments should be encouraged where they:
 - a. Improve poor people's livelihoods.
 - b. Use non-food feedstocks that don't have a negative effect on the environment.
7. Staff and volunteers at Foodgrains Bank are encouraged to take this statement into consideration in all programming, public engagement and advocacy work.