

Advances in biofuel research continue, leading to cleaner petroleum alternatives

Elisabeth Rosenthal's Feb. 8 article, "Studies Deem Biofuels a Greenhouse Threat," covered two reports recently released by scientists Timothy Searchinger and Joseph Fargione. These reports indicate that biofuels are not sustainable when compared to conventional petroleum fuels. These reports have been the basis of letters to both the President of the United States and Speaker of the House urging a reform of national biofuels policies.

Having lived in the state of Iowa for 30 years, and having worked extensively with seed-oil based industrial products for over 17 years, I appreciate the sustainability issues related to biofuels.

In technology forecasting, some predictions can be self-defeating just as others can become self-fulfilling. In this case, both reports and their projections of a pending global disaster due to inappropriate land use are overly simplistic and do not take into account many other related factors. The assumption that corn and soybeans are and will continue to be the long term source of raw materials for biofuels production is incorrect, and it is this assumption that leads us to make self-defeating projections.

Following are alternate points of view to the two reports as presented by Rosenthal.

1. Sustainability and land use -- In the accounting and computer fields there is a saying: "garbage in, garbage out!" So far, nearly every study done on the environmental sustainability of the biofuels industry seems to include factors that could turn the results either way.

Both studies include assumptions that are not true. Here are some examples:

The problem with the argument that soybean and corn planting in the U.S. and Brazil leads to destruction of the rainforest is that soybean and corn are intermediate crops for biofuels. There are many alternative crops (industrial crops) currently being investigated that can produce more oil per acre than either of these commodities. One such crop, Camelina, is currently grown in Montana. It produces nearly twice as much oil as soybeans and can grow in dry lands. More crops under investigation can grow in the

deserts or in the winter. Genetically modified crops already are available to produce specific traits for biofuels, thus reducing the cost of production.

The Association for Advancement of Industrial Crops reports on several promising crops that can produce alternative fuels without many of the problems often cited for common commodity crops, like corn and soybeans. Unproductive land all over the world can be designated for fuel and food production. By designing or selecting the right crops, any land could be used to grow crops for fuels profitably. Biofuels, even with their short-term flaws, provide the economic impetus to pursue and create alternative crops and thus make the land-use argument moot.

2. Crop Rotation -- According to Rosenthal, the study by Fargione claims that farmers have stopped rotating corn and soybeans due to the high price of corn, thus requiring other land to be used for soybeans. Although higher corn prices did result in some farmers not rotating last year, those familiar with farming and commodity prices realize that without regular rotation the yields in subsequent years are reduced, and rotating crops becomes an economic decision. Also, anyone monitoring the Chicago Board of Trade prices would notice that the soybean prices are at record highs and soybean oil prices are double the prices of just a year ago. This means that growing soybeans is competitive with growing corn again, and makes for some very happy farmers in the Midwest.

The simplistic judgments made on biofuels are rampant, especially from those who are removed from the Midwest and farming. In a recent late night show, Bill Maher stated that all this ethanol and renewable fuel business is a conspiracy by Archer Daniel Midland Company to reap huge benefits from ethanol subsidies. These individuals should spend a little time in Iowa to see what the impact has been in commodity prices, in land prices, and for manufacturers of farm machinery, as well as overall regional economic benefits. It is not one company manipulating the market and the government. The success of farmers leads to less government support, allowing some of the future farm subsidies to be used in other programs.

The nearly 7 billion gallons of ethanol produced in the country last year took a small but significant bite out of the petroleum-based gasoline market. Government projections include another 7.5 billion gallons of ethanol to be added by the year 2012.

While commodity crop production continues, great scientific efforts are underway to economically produce cellulosic ethanol. This is ethanol made from the cellulose of anything from forestry waste, to corn stalks and garbage. First demonstration plants are under construction; and over \$400 million in federal grants currently are at work to find enzymes that break down various materials and convert them to fuel or microbes that are more efficient at fermenting for fuel production.

Unfortunately, scientific papers, such as those reported by Rosenthal, are based on incomplete information and create misconceptions. Ten years ago, genetically modified crops were attacked by so-called scientific studies that warned of the massacre of butterflies. This created a backlash in the U.S. and hysteria in Europe. Today, more than 90 percent of the corn and soybeans grown in the U.S. are genetically modified. Ten years from now we can have alternative crops that will grow everywhere no matter what the season, and cellulosic-based processes will convert many raw materials to fuels.

The fact is that biofuels are part of our energy mix of the future, and while producing biofuels with commodity crops is expensive and less desirable, research will lead to biofuel production that is more economical and even more successful as new crops and new processes are commercialized.

Achieving this goal requires strong hearts, determination and continued research. And as long as dictators like Hugo Chavez keep using our petrodollars to taunt us, the grassroots support for the biofuels industry will keep countering such incomplete and misleading reports.

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