Biofuel: Is Sustainability Sustainable?

Persuasive Writing
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Biofuel is a buzzword employed to describe “homegrown gasoline and diesel substitutes made from crops like corn, soybeans, and sugarcane” (Bourne, 2007, p. 41). It is touted as the panacea for the impending world-wide fuel-shortage. Unlike fossil fuel, which takes thousands of years to form, biofuel is manmade, can be produced in the space of a few weeks, and is potentially sustainable (Bourne, 2007). Biofuel also promises to help the world cut down on carbon dioxide emissions. Burning a fossil fuel alternative, such as ethanol, releases less carbon dioxide than fossil fuels (Bourne, 2007), though it does produce other greenhouse gases. Jumping on the biofuel bandwagon might cause more damage than good.

Despite these positive attributes, biofuel has serious problems that must be solved before it can become a sustainable source of energy. Corn ethanol, the biofuel of choice in the United States, is the worst crop to use because it takes “at least as much fossil fuel to obtain ethanol, as we may gain by burning it” (Anti et al., 2005, p. 324). If the United States is serious about finding a sustainable source of biofuel, the idea of using corn to manufacture it must be discarded.

Corn takes more resources to cultivate than any other crop, and causes the most pollution (Anti et al., 2005). Corn requires nitrogen-rich fertilizer in order to grow, and ammonia is the primary ingredient in such fertilizers. Manufacturing this fertilizer is hazardous, as well as detrimental to the environment, because “practically all ammonia is produced from methane. All carbon in the feedstock methane is converted to carbon dioxide and, as a result, two pounds of carbon dioxide are produced for every pound of ammonia” (Anti et al., 2005, p. 324).

To convert corn into alcohol, it has to be boiled at least three times to distill the alcohol and remove excess water. The energy levels required to do so are immense, and are powered by fossil fuels. Thus, even if corn ethanol produced less carbon dioxide when burned, the process of growing the corn and converting it into fuel would more than make up for it. Growing corn also requires about 35 gallons of water per bushel, which causes massive amounts of fertilizer and herbicide runoff (Anti et al., 2005). The environmental impacts of contaminated wastewater and runoff occurs in agricultural places where the water is undrinkable due to the pollution, and "vast quantities of farm land are degraded, aquifers are depleted and contaminated rivers and the Gulf of Mexico are polluted with fertilizer and pesticide run-off" (Anti et al., 2005, p. 326).

Another roadblock is the way ethanol is burned. Because standard automotive engines can't burn straight ethanol, drivers would have to buy a new engine to replace fossil fuels with ethanol, which isn't feasible (Bourne, 2007, p. 47). The United States can't survive solely on corn ethanol without risking irreparable damage to the environment, so the country needs to create alternate forms of energy production if we are to achieve sustainability.

Supporters of corn ethanol assume that corn production builds up the economies of small rural towns. This isn't true. While the price of corn increases as demand increases, "corn farmers are receiving a maximum of only an added two cents per bushel for their corn or less than $2.80 per acre because of the corn ethanol production system" (Patzek & Pimentel, 2005, p. 67). Most of the profits go to a few large corporations, just as they do in the oil industry. Whether biofuel can benefit farmers and small

communities depends on “ownership of production facilities and the mix and marketability of useful co-products” (Kurki et al., 2006, p. 1).

Corn biofuel should not be the United States’ primary source of energy because it is not sustainable. If the country relied entirely on corn biofuel, farmland would be depleted in a matter of years, droughts would be widespread, and air and water pollution would increase. This scenario holds true for any of the current biofuels, but corn is the most dangerous. It has the lowest energy yield of any biofuel and takes more resources to create than it returns. Solar, wind, and water power are all sustainable resources with has unlimited access, or rechargeable batteries in cars would cut back drastically on the dependence on fuels. If Americans want to lead sustainable lives, they must abandon corn as a source of biofuel.

References

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