

## Environmental impacts of ethanol and other biofuels

*Industrial corn farming for ethanol contributes to water pollution, soil erosion, carbon dioxide emissions and oil demand. Other biofuels crops like switchgrass, corn stover and algae, require varying degrees of environmentally harmful inputs and fossil fuels for production.*

**Air pollution:** Ethanol plants have been cited for noise and air pollution.<sup>1</sup> More air pollution is also created through the use of fossil fuels in biofuels crop growth and production. Using biofuels in cars actually worsens some forms of air pollution.<sup>2</sup>

**Water pollution:** Biofuels production is damaging ecosystems, increasing fishkills and erosion, and decreasing biodiversity.<sup>3</sup> A 2009 Purdue University study found that water pollution from fertilizers and toxic herbicides and pesticides increases with more corn ethanol production due to expanded corn farming.<sup>4</sup> Similarly, a 2008 University of British Columbia study found that the Gulf of Mexico Dead Zone is larger because of existing federal biofuels policy.<sup>5</sup> The Dead Zone is an area the size of Massachusetts where no marine life can survive because of pollution run off, in part, from corn farms.<sup>6</sup>

**Land use change and reduction in habitat:** Due to massive land requirements, biofuels production contributes to global deforestation and ecosystem destruction. Forests, grasslands and other ecosystems are destroyed for the production of biofuel crops and the food crops that biofuels production displaces.<sup>7</sup> This destruction dramatically reduces habitat available for thousand of species, putting species like the orangutan and Sumatran tiger at even great risk of extinction.

**Global warming:** Biofuels worsen global warming at every stage. A 2009 Duke University study found that corn farming makes global warming worse by removing carbon stored in the soil.<sup>8</sup> Deforestation for biofuels production has dramatically worsened global warming.<sup>9</sup> Adding land use change into greenhouse gas emission accounting shows that some biofuels are actually worse for the environment than gasoline.<sup>10</sup> The most prevalent biofuels crop, corn, uses copious amounts of oil-based fertilizers, the creation of which releases potent greenhouse gas pollution.<sup>11</sup>

### Endnotes

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- 4 Wallheimer, Brian. "Study shows more corn for biofuels would hurt water." *Purdue University*. Sep. 28, 2009. <http://news.uns.purdue.edu/x/2009b/090928ChaubeyWater.html>
- 5 Thompson, Andrea. "Corn ethanol will worsen dead zone." *MSNBC*. Mar. 18, 2008. <http://www.msnbc.msn.com/id/23695288/>
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- 7 Butler, Rhett. "Amazon rainforest will bear cost of biofuel policies in Brazil." *Mongabay.com*. Feb. 8, 2010. [http://news.mongabay.com/2010/0208-amazon\\_biofuels.html](http://news.mongabay.com/2010/0208-amazon_biofuels.html)
- 8 Duke University. "Corn-for-Ethanol's Carbon Footprint Critiqued." *ScienceDaily* 11 March 2009. 16 June 2010 <<http://www.science-daily.com/releases/2009/03/090302183321.htm>>.
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- 10 [http://www.nature.org/initiatives/climatechange/files/land\\_clearing\\_and\\_the\\_biofuel\\_carbon\\_debt.pdf](http://www.nature.org/initiatives/climatechange/files/land_clearing_and_the_biofuel_carbon_debt.pdf)
- 11 Pew Center for the Environment. "Agriculture Overview." <http://www.pewclimate.org/technology/overview/agriculture>



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# Biofuels and Indirect Land-Use Change

A Representative Depiction of How Biofuels Can Contribute Indirectly to Global Warming



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