

## **Ethanol - General**

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## **Ethanol is renewable energy**

Kantor, Andrew – February 20, 2004, USA Today,

[http://www.usatoday.com/tech/columnist/andrewkantor/2004-02-20-kantor\\_x.htm](http://www.usatoday.com/tech/columnist/andrewkantor/2004-02-20-kantor_x.htm)

There is a lot of good to say about ethanol — it's renewable, it's easily portable, it's fairly 'energetic,' and it burns cleaner than gasoline. But it's not *the* answer. It's not magic. Remember that politicians are very good at bending the truth and forgetting to mention the down sides. And just because something grows on trees — or stalks — doesn't mean it doesn't cost.

## **Ethanol would require 13 million tons more fertilizer and cause short term health disease**

Kantor, Andrew – February 20, 2004, USA Today,

[http://www.usatoday.com/tech/columnist/andrewkantor/2004-02-20-kantor\\_x.htm](http://www.usatoday.com/tech/columnist/andrewkantor/2004-02-20-kantor_x.htm)

So let's cut to the chase: To get enough ethanol from corn to power our cars, Americans would need to use almost 13 million tons more fertilizer, and dump more than 93.5 million tons of atrazine into the environment every year. (The potential health effects of atrazine read like the small print in a drug ad: congestion of the heart, lungs, and kidneys; low blood pressure; muscle spasms; weight loss; damage to adrenal glands. And that's in the short term.)

## **Ethanol facilities produce hazardous air pollutants**

HOGUE, Cheryl May 13, 2002, AIR POLLUTION FROM ETHANOL, EPA says ethanol plants are releasing volatile organics, carbon monoxide, Chemical and Engineering News, Vol 80, No. 19,

<http://pubs.acs.org/cen/topstory/8019/8019notw3.html>

An [EPA](#) spokesman says tests by the federal agency and state regulators at a number of ethanol plants found emissions of volatile organic compounds (VOCs) and carbon monoxide that were many times greater than companies had reported. Organic compounds included three chemicals ranked as hazardous air pollutants: acetaldehyde, formaldehyde, and acrolein, he tells C&EN.

"We expect that this circumstance is not unique to the tested facilities but rather is common to most, if not all, ethanol facilities," says a recent letter from EPA's Midwestern office, which is based in Chicago. The missive invited ethanol producers to a meeting last week to discuss their air emissions. EPA subsequently canceled the meeting and rescheduled it for early June.

Monte Shaw, spokesman for the [Renewable Fuels Association](#), an ethanol industry group, says makers of the alcohol were not aware of the emissions and have yet to see the data that triggered EPA's concern. "Nobody knew it was going on," he says.

## **Nearly all Ethanol is corn based**

Gartner, John. June, 2, 2005 Biomass Adds to Ethanol Debate, Wired News, <http://www.wired.com/news/planet/0,2782,67691,00.html>

Nearly all of the ethanol in the United States is currently produced by fermenting the sugars in corn grain, according to Robin Graham, the group leader of ecosystem and plant sciences at [Oak Ridge National Laboratory](#).

## **Corn easier to transport than biomass**

Gartner, John. June, 2, 2005 Biomass Adds to Ethanol Debate, Wired News, <http://www.wired.com/news/planet/0,2782,67691,00.html>

Corn is the favored feedstock for ethanol today because "it is dense and full of energy, and it is grown all over the country," according to Ralph Groschen, senior marketing specialist for the [Minnesota Department of Agriculture](#). He said that corn is easy to transport while biomass is "fluffy" and takes a larger area for storage.

## **Ethanol from plants less costly**

Gartner, John. June, 2, 2005 Biomass Adds to Ethanol Debate, Wired News, <http://www.wired.com/news/planet/0,2782,67691,00.html>

The economics of ethanol could soon change, as Oak Ridge National Lab's Graham said that producing ethanol from the cellulose of plants is less costly than using corn grain. The cost of raw materials for biomass-based ethanol could be much lower, since tree and plant residue from clearing lots can be obtained for free, and switchgrass (a perennial crop that grows everywhere east of the Rocky Mountains) and corn stovers (dried leaves and stalks) are inexpensive to acquire, according to Graham.

## **Ethanol from biomass more energy efficient**

Gartner, John. June, 2, 2005 Biomass Adds to Ethanol Debate, Wired News, <http://www.wired.com/news/planet/0,2782,67691,00.html>

Using corn grain to produce ethanol is relatively energy-inefficient when compared to utilizing biomass, Graham said. Producing ethanol from corn grain generates about 1.4 times as much energy as the process consumes, when pesticides and fossil fuels are factored in, she said. "The energy yield from cellulosic materials is like 10-to-1."

## **Ethanol from biomass can be produced throughout US**

Gartner, John. June, 2, 2005 Biomass Adds to Ethanol Debate, Wired News,  
<http://www.wired.com/news/planet/0,2782,67691,00.html>

Unlike corn, biomass can be harvested in quantity throughout the United States, according to Burt English, a professor in the agricultural economics department at the [University of Tennessee](#). English said agricultural waste that comes from yard clippings and clearing trees could be collected from any urban area. Producing ethanol from switchgrass would take some land out of food production and would have "the impact of increasing farm prices and reducing government payments," he said.

## **Switching to Ethanol from Biomass would increase profits**

Gartner, John. June, 2, 2005 Biomass Adds to Ethanol Debate, Wired News,  
<http://www.wired.com/news/planet/0,2782,67691,00.html>

Biomass could be converted into ethanol in commercial quantities at a cost equivalent to \$25 per barrel of crude oil, or roughly half the current price of imported oil, according to E. Kyle Datta, co-author of [Winning the Oil Endgame](#) and managing director of research and consulting at the Rocky Mountain Institute, an energy policy group. Datta said farmers who shift from corn to switchgrass could increase their per-acre profit from about \$350 to between \$400 and \$600.

## **Biomass-to-Ethanol transfer \$40 billion back to US**

Gartner, John. June, 2, 2005 Biomass Adds to Ethanol Debate, Wired News,  
<http://www.wired.com/news/planet/0,2782,67691,00.html>

Commercializing biomass-to-ethanol technology would also have international political ramifications, according to Datta. Producing 2.4 million barrels of ethanol per day would "be a \$40 billion per year transfer of wealth from the Middle East to our farmers," he said. Federal funding of biomass-based ethanol should be less controversial because "instead of six states benefiting, everyone benefits."

## **Ethanol contributes to increased smog**

Wallace, Ed. April 27, 2006. Business Week, Ethanol: A Tragedy in 3 Acts, [http://www.businessweek.com/autos/content/apr2006/bw20060427\\_493909.htm](http://www.businessweek.com/autos/content/apr2006/bw20060427_493909.htm)

What GM left out of its ads was that the use of this fuel would likely increase the amount of smog during the summer months (as the EPA's own attorneys had admitted in 1995) -- and that using E85 in GM products would lower their fuel efficiency by as much as 25%. (*USA Today* recently reported that the Energy Dept. estimated the drop in mileage at 40%.)

## **Ethanol is a net energy waste**

Wallace, Ed. April 27, 2006. Business Week, Ethanol: A Tragedy in 3 Acts, [http://www.businessweek.com/autos/content/apr2006/bw20060427\\_493909.htm](http://www.businessweek.com/autos/content/apr2006/bw20060427_493909.htm)

The other negative aspect of this inefficient fuel is that numerous studies have found that ethanol creates less energy than is required to make it. Other studies have found that ethanol creates "slightly" more energy than is used in its production. Yet not one of these studies takes into account that when E85 is used, the vehicle's fuel efficiency drops by at least 25% -- and possibly by as much as 40%. Using any of the accredited studies as a baseline in an energy-efficiency equation, ethanol when used as a fuel is a net energy waste.

## **Corn based Ethanol is a waste of energy**

Balik, Carl. June 9, 2006. Wall Street Journal Online, Digging Into the Ethanol Debate, <http://socrates.berkeley.edu/erg/news/WSJ-6-9-06-ethanol1.pdf>

Critics, meanwhile, have blasted the viability of ethanol. A central argument is that corn-based ethanol, the most-common form today, is literally a waste of energy. Detractors say that it takes more fuel to make ethanol -- growing the corn, bringing it to a processing plant and converting it to fuel -- than would be saved by using it.

## **Corn based Ethanol requires 29% more fossil energy than the ethanol produces**

Balik, Carl. June 9, 2006. Wall Street Journal Online, Digging Into the Ethanol Debate, <http://socrates.berkeley.edu/erg/news/WSJ-6-9-06-ethanol1.pdf>

Two prominent researchers are chiefly responsible for the energy-efficiency claim: Cornell University's David Pimentel and Tad Patzek of the University of California, Berkeley. In a co-written paper published last year in *Natural Resources Research*, Profs. Pimentel and Patzek wrote, "Ethanol production using corn grain required 29% more fossil energy than the ethanol fuel produced." By comparison, production of gasoline or diesel uses about 20% more fossil energy than the fuels produce. (For automobiles, ethanol is generally blended with gasoline in either 90-10 or 85-15 proportions, but the studies focused on the energy content of the ethanol itself.)

### **A/T: Net Energy Waste – new technology solves**

Balik, Carl. June 9, 2006. Wall Street Journal Online, Digging Into the Ethanol Debate, <http://socrates.berkeley.edu/erg/news/WSJ-6-9-06-ethanol1.pdf>

But the analysis stacks the deck against ethanol in a number of ways. Perhaps most important: The researchers attributed a wide array of energy costs to ethanol production, including the energy required to produce tractors used in cornfields and even all forms of energy consumed by workers for things such as food, transportation and police protection. Equivalent factors generally aren't included in comparable analyses of rival fuels like gasoline. Also, researchers didn't take into consideration the value of ethanol by-products, which can be used in cattle feed.

What's more, the skeptical analysis was based on all technology in use at the time, including old plants. Ethanol has become a hot business and a target of venture capitalists. There is reason to believe that ethanol production is only going to become more efficient, possibly at a faster rate than the more mature petroleum industry. The newest plants incorporate technology to streamline the process and save energy and money. Researchers are also looking at methods to get ethanol from sugar cane and switchgrass, which appear to be more energy-efficient than those for corn. "There are a lot of new technologies," said Hosein Shapouri, an agricultural economist for the U.S. Department of Agriculture. "It's going to continue to improve the yield, and also lower the energy."

The Bush administration says ethanol is more energy efficient than the critics claim. Department of Energy spokesman Craig Stevens told me in an email, "Based on the vast majority of research and analysis, the department believes that the energy delivered by ethanol is greater than the fossil energy put into its production."