

Ethanol Has A Few Knocks Of Its Own

For one, the biofuel won't replace oil.

By Harold Brubaker, Inquirer Staff Writer

As drivers cringe at the cost of filling up this summer, the ethanol industry is spending billions to build on the biofuel's momentum as an alternative to gasoline.

Advocates trumpet ethanol as a homegrown fuel that builds rural economies, benefits the environment, and enhances national security.

General Motors Corp. is promoting its line of "corn-fed" flex-fuel vehicles with a "Live Green, Go Yellow" advertising campaign.

So as ethanol works its way into the U.S. fuel market, is "fill up, feel good" - as one ethanol promotion group urges - the proper attitude for American drivers?

Probably not.

Corn-based ethanol cannot go far as a substitute for the 385 million gallons of gasoline Americans burn daily.

Even if all of last year's corn crop had been used to make ethanol, that supply would have fallen far short of breaking America's oil habit, offsetting just 12 percent of gasoline demand, according to research published last month in the Proceedings of the National Academy of the Sciences.

Ethanol production reached 3.9 billion gallons last year, a 15 percent increase from 2004, according to the Renewable Fuels Association.

That was less than 3 percent of the 140 billion gallons of gasoline used in the United States last year. It was even less in terms of energy; ethanol contains about one-third less energy per gallon than gasoline.

"We understand that corn is just one piece of the future of ethanol," said Geoff Cooper, director of ethanol and business

development for the National Corn Growers Association in St. Louis.

In many parts of the country, including the Philadelphia area, ethanol is blended with gasoline, representing about 10 percent of each fill-up. In other parts of the country and overseas, it is sold in blends of up to 85 percent to owners of specially equipped vehicles.

Experts said new technologies to produce ethanol from entire plants - rather than just the starch in the grain - are needed to help achieve the U.S. Department of Energy's goal of replacing 30 percent of gasoline - based on 2004 consumption - with biofuels by 2030.

The Energy Department said this week that it would spend \$250 million on two Bioenergy Research Centers to work toward that goal, which would "make biofuels a cost-effective alternative to fossil fuels."

But for now, corn-based ethanol is king, though some experts doubt the wisdom of giving it such a prominent role in the nation's energy mix - as was done in the 2005 energy bill, which requires annual use of 7.5 billion gallons of renewable fuel by 2012. Ethanol is the only fuel in the position to help oil refiners meet that goal.

One of the nagging doubts about ethanol is whether it provides more energy than is needed to make it. A recent assessment of this question by researchers in Minnesota concluded that corn-based ethanol provides about 25 percent more energy than goes into its production.

But most of that net gain in energy comes from a byproduct that is used as animal feed, which offsets other energy use, the researchers from the University of Minnesota and St. Olaf College said.

Jeff Schahczenski, a program specialist for sustainable agriculture at the National Center for Appropriate Technology in Montana, described ethanol as a steamroller that is going to be difficult to stop "because it's so easy to stuff this excess corn in ethanol plants."

The presence of ethanol in the national consciousness has risen and fallen with the price of oil over the last 30-plus years.

For American agriculture, the push for ethanol since the 1970s has been largely about securing an additional market for corn, the nation's largest cash crop, despite perennially low prices.

Thomas Dorr, undersecretary for rural development in the U.S. Department of Agriculture, recently recalled in the mid-1970s pitching Iowa farmers on paying for programs to support ethanol by warning them that the industry would someday have a 10-billion-bushel corn crop to sell. At the time, the harvest was five billion bushels, he said.

With the help of a federal tax credit started in 1978, a tariff on imports since 1980, and tens of billions in subsidies to corn growers, ethanol has stuck around to gobble up increasing amounts of surplus corn.

Ethanol producers have broken ground for 27 ethanol plants with planned annual capacity of nearly two billion gallons since the passage of the 2005 Energy Policy Act just over a year ago, according to the Energy Department.

"I call ethanol the heroin of transportation fuel," said William O'Keefe, chief executive officer of the George C. Marshall Institute, a Washington nonprofit that conducts scientific assessments of public-policy issues. "The agricultural community is so hooked on it. I don't know that any Congress or president can withstand their force."

Moreover, O'Keefe and other experts caution that agriculture's environmental impact is not getting enough attention amid the enthusiasm for ethanol as a renewable fuel.

Chief among the concerns is the depletion of finite resources, such as soil.

Cooper, of the corn growers' group, said his members, some of whom are the sixth generation on the same land, were good stewards. "Those guys aren't going to do things that jeopardize that land," he said.

Still, even though many U.S. farmers have adopted cultivation methods that reduce soil erosion, the nation is still losing topsoil 10 times faster than it can be replaced, said David Pimentel, a Cornell University researcher.

While experts expect most of the increased demand for corn from ethanol producers to be met by increasing yields, at least some additional acreage is expected to be used for corn, including some that is not well suited to the crop, according to the USDA.

That would mean increased use of nitrogen fertilizer, some of which runs off fields, contaminating groundwater and contributing to a so-called "dead zone" in the Gulf of Mexico at the mouth of the Mississippi River, where a lack of oxygen kills fish, crabs and other marine life.

Biofuels advocates anticipate a more sustainable future, when perennial grasses and other plant matter provide the raw material for ethanol. Corn "will always be a part, but it won't be a big part in 20 years," Schahczenski said.

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