



Fuel of the future?

Cleaner diesel coming to a pump near you

By Mary Reed

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Only a few years ago, Associate Professor of Civil Engineering Ben Stuart “knew nothing” about biodiesel, he says. That’s more than a little surprising. The instructor of a course called “Sustainable Applications: Biodiesel,” Stuart also drives a car that proclaims his enthusiasm for the biodegradable fuel with the license plate “BIOD 4 ME.”

But it was the prodding of a few inquisitive students — specifically those who kept asking, “Why don’t we use more biodiesel here?” — that led Stuart to research the subject. Today, he directs the Biofuels Research Laboratory, which focuses on developing fuel from algae.

Here Stuart shares his knowledge and encourages us to consider how everyday decisions affect the environment. (*To learn more about the Ecohouse, another green effort at the university, see page 20.*)

What is biodiesel?

“Biodiesel is a fuel that can run in diesel vehicles and is made from recently living biomass,” Stuart explains with the precision of a scientist. Generally, biodiesel in North America is made from crops such as soybeans or canola, but it also can be made from animal fats or waste oil from restaurant fryers. The inventor of the diesel engine, Rudolf Diesel, ran his first engine on peanut oil.

Biodiesel made from agricultural products — mostly soy — is available at the pump for consumers. According

to the National Biodiesel Board, 75 million gallons of biodiesel were sold in the United States in 2005, and 2006 sales were estimated to reach 150 million gallons. This accounts for only 0.15 percent of the diesel market, but biodiesel sales are climbing quickly: In 1999, only 50,000 gallons were sold. By comparison, though, the nation consumes more than 140 billion gallons of gasoline each year.

Why switch to biodiesel?

Like most proponents of biodiesel, Stuart touts its environmental benefits. Not only is the fuel biodegradable, it’s also nontoxic. “The reduction in all of the pollutants associated with petroleum diesel particulates — such as carbon monoxide — are tremendous,” he says, adding some are reduced by 50 to 100 percent.

What’s a greasel or veggie car?

Biodiesel is not to be confused with the greasel that fuels a “veggie” car. Greasel is typically a waste oil unless it’s converted to biodiesel, Stuart says. In other words, a diesel vehicle can run on pure vegetable oil, such as that leftover in fryers, but the oil congeals at average temperatures. Biodiesel is chemically modified, so it performs at average temperatures and meets industry standards.

What runs on biodiesel?

“Any diesel engine can burn biodiesel,” Stuart says. Most trucks and some

SUVs are available with diesel engines. Some Jeep models come from the factory with a biodiesel blend in the tank. When Stuart and his wife adopted three siblings to join their three biological children, he bought a new vehicle. “I needed eight seatbelts,” Stuart says, so he settled on a diesel Ford Excursion.

Today, only Volkswagen and Mercedes sell diesel passenger cars in the United States, but other companies, including Honda, will offer them in coming years.

Where is biodiesel available?

While still a fraction of the market, biodiesel is available at some corporate gas stations such as BP as well as from independent producers and farmer cooperatives. In Athens, Stuart buys biodiesel at a BP bulk plant. When he takes his family on summer vacation this year, he will log on to www.biodiesel.org to find fuel along the way.

How much does it cost?

“Currently, biodiesel is slightly more expensive than petroleum diesel — somewhere between 10 and 20 percent more,” Stuart says. “Since there are government subsidies on both, it is difficult to do a true comparison of fuel cost.” But Stuart shares his opinion: “In terms of our global society, it is environmentally and politically a better choice.”

Mary Reed, BSJ '90 and MA '93, is a freelance writer living in Athens. She, too, drives a biodiesel-fueled car.