Pass Gas, Use Biodiesel

How Loyola's Biodiesel Program is impacting our carbon footprint.

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There's more to those greasy french fries in Rambler Room than you think. By next semester, Loyola's shuttle service fuel will be combined with five percent of biodiesel made from leftover fryer oil by Loyola students.

Chandler West

Good grease! — Waste vegetable oil (WVO) from Loyola's cafeterias are collected in a vat before being converted into biodiesel. Methanol and lye are then mixed together and added to the WVO, a chemical reaction that results in biodiesel, glycerol, water and soap.

Since the spring of 2008, the Biodiesel Program at Loyola has been converting waste vegetable oil from the university's cafeterias to produce biodiesel — a cleaner-burning fuel that can run in any diesel engine.

After a one-year process pursuing licensing as a fuel distributor, Loyola's Biodiesel Program will finally sell its eco-friendly fuel to Free Enterprise (Loyola's shuttle service) for shuttle buses being used between Lake Shore and Water Tower campuses starting in Spring 2010. The Biodiesel Program is the first university program to be licensed to sell fuel at Loyola. Six interns produce the biodiesel every week and a biodiesel club is launching in the near future.

Besides just relying on leftover Rambler Room grease, the Biodiesel Program has also been collecting oil from a local restaurant, Uncommon Ground. According to Biodiesel Lab Manager Zach Waickman, who graduated from Loyola with a degree in communication in 2008, the program is currently talking to a number of restaurants in Rogers Park and Edgewater about using their excess fatty acid to create all-vegetable fuel.

Free Enterprise will be combining five percent of the veggie-oil derived substance with regular diesel. Loyola cannot provide Free Enterprise with a larger percentage of biodiesel because there is simply not enough fryer oil available. However, according to Waickman, the impact of Loyola's biodiesel on the shuttle service will be "significant" since "every gallon of biodiesel burned instead of regular diesel saves more than 12 pounds of carbon dioxide emissions" — that nasty, smoggy stuff that comes out of vehicles' tailpipes. But the Biodiesel Program doesn't stop its civic engagement there.

More reasons to support all that greasy college food lie in the Biodiesel Program's outreach projects. After receiving a $75,000 grant from the U.S. Environmental Protection Agency for Loyola's success with biodiesel, the Biodiesel Program has been promoting the fryer oil fuel at Carl Sandberg, Highland Park, Bloom Trail and Victor Andrew high schools since Fall 2008. This money has been used to produce M-GELs or "Mobile Green Energy Labs," which can be paired with a fryer to create a closed loop system. The M-GEL uses the fryer's vegetable oil to produce biodiesel that powers the fryer, which in turn powers the M-GEL.

Adam Schubel, a Loyola faculty instructor and biodiesel expert, said that the Biodiesel Program hoped to include Chicago Public Schools, but these schools surprisingly don't have deep fryers: healthy for the students but "unfortunate" for Loyola, Schubel remarked.
The Biodiesel Program also hopes to expand its continuing education project, which teaches interested adults how to produce biodiesel for personal or small business use through "Continuum," Loyola's program of non-credit continuing education for adults.

Even though Loyola's Biodiesel Program has recently become a small business and community provider, the program actually started in Fall 2007 with the introduction of the STEP (Solutions to Environmental Programs) course. STEP is a cutting-edge, interdisciplinary class

that teaches students about global sustainability topics. Even though the class is based on scientific principles, students come from all disciplines, such as the Schools of Education, Business and Communication. For three semesters, STEP focused on biodiesel before switching to “Food Systems,” taught by Schubel, in the 2009-2010 academic year.

The STEP class was funded partly by a $10,000 grant from the U.S. Environmental Protection Agency’s “People, Prosperity and the Planet Student Design Competition for Sustainability” (P3) Program. This money helped purchase equipment, such as two 100-gallon tanks, to produce fuel. In 2008, the EPA named Loyola University Chicago a P3 Award winner for the STEP course’s biodiesel project.
Waickman, a student of the first STEP class, said that the “ultimate goal” for biodiesel at Loyola is to become a “self-sustaining program.” One way that he hopes this will be accomplished is through glycerin soap sales: Glycerin is a byproduct of biodiesel production and the Biodiesel Program has been making soap with this surprisingly useful waste product.

The most important impact of the Biodiesel Program, however, is the cleaner fuel emissions of Loyola’s shuttles. Regular diesel is notorious for releasing particulate emissions, such as smog and soot, and contributing to poor air quality, which can lead to respiratory illnesses. According to Waickman, biodiesel “reduces particulate emissions to almost nothing” and “eliminates sulfur emissions” that contribute to acid rain. With Loyola’s Biodiesel Program, we can all breathe a little easier.