

Dining center fryer oils to be converted to biodiesel

Written by Amanda DiSilvestro, Daily Vidette Senior Staff
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ISU's dining centers produce about 6,000 gallons of fryer oil waste per year, and thanks to the efforts of the department of health sciences' environmental health major, Campus Dining Services, Facilities Management and the department of agriculture, this waste is now being turned into fuel for campus fleet vehicles.

A group of undergraduate environmental health students – seniors Steve Jeka, Ashley McIlwee and Chris Lund and junior Kirsten Carlson – have been working on testing biodiesel that Fleet Operations personnel will soon begin using in diesel powered vehicles. McIlwee explained this is an eight-step process.

“We first collect the fryer oil from the dining centers and bring it to Gregory Street where we let it sit so that it can settle. Then we take out the good, settled oil and get ready to put it in the machine we use called the Bio-Pro 190,” McIlwee said. “We put in about 50 gallons of the oil, then sodium hydroxide, methanol and sulfuric acid and let it sit for 24 hours so it can mix and react.”

After the waste oil reacts, the students separate the biodiesel from the glycerin and methanol waste, which will be settled at the bottom. Once this step is completed, the team begins the wash process.

“We then add about 50 gallons of water into the machine for the next 24 hours to remove any contaminants, and finally check for quality,” McIlwee said.



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“People will then come to get it and blend it using B20, 20 percent campus-produced biodiesel and 80 percent regular diesel and get it ready to use,” Jeka continued.

Biodiesel often performs better than or as well as petroleum and produces fewer emissions, making biodiesel fuel more environmentally friendly.

Tom Bierma, environmental health professor and lead faculty member on the project, explained that if all the dining center waste was converted, not only would ISU meet half of its diesel fuel needs, but would cut diesel fuel greenhouse gas emissions almost in half.

“Diesel fuel burns cleaner, is better for the engine, and causes less pollution. If every university did this, the potential for positive effects would be huge,” Bierma said.

Bierma also explained that the project has been a great educational experience for students, although it is an involved process. The students involved had to go through physicals and fit tests to make sure the respirator they need to wear would fit securely. Students also have to wear certain gloves when working with this hazardous waste, but found it to be worth it in the end.

“In our introductory courses we talk about alternative fuels, and it is so interesting to hear about it in class and then be a part of it. This is a great opportunity that I do not think we could get inside the classroom,” Jeka said.

“[The project] forces us to think a lot about the ‘what if’s’ and figure out how to make the process better, as well as how to critically think, and even improve our writing skills,” Carlson concluded.