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Cooking with gas: WKU bus now runs on biodiesel converted from cooking oil

By DON SERGENT dsergent@bgdailynews.com 21 hrs ago

Students waiting for Western Kentucky University's Topper Transit bus No. 13 may find themselves craving french fries, thanks to the aroma from the vehicle's exhaust.

Call it the sweet smell of an innovative program spanning several WKU departments.

A project to convert used cooking oil to biodiesel fuel, started nearly six years ago, culminates Thursday with the rollout of that No. 13 bus and its fry-cook odor as part of the university's annual observance of Earth Day.

WKU's Earth Day celebration, held three days before the worldwide Earth Day, is from 10 a.m. to 2 p.m. Thursday at Centennial Mall near Downing Student Union.

“We specifically picked Earth Day,” said Kevin Schmaltz, a professor in WKU’s engineering and applied sciences department who has spearheaded the biodiesel project. “We’ve been collecting used cooking oil on campus for about six years. Until recently, we’ve been using it to run some tractors on the university farm. We have a little additional supply of used cooking oil, so we’re trying to branch out.”

Schmaltz and others involved in the biodiesel transition explained that the bus taking students around campus has been gradually weaned off traditional diesel fuel and its abundance of foul-smelling particulates.

“We’ve gone from using about 25 percent biodiesel to where we were using 75 to 80 percent for a while,” said Tim McWhorter, WKU’s assistant director of transportation. “We have now transitioned to 100 percent biodiesel. So far, everything has gone really well.”

So well that WKU President Timothy Caboni is scheduled to ride on the bus Thursday morning along with university mascot Big Red to that Earth Day celebration.

Schmaltz says it’s fitting that the biodiesel-powered bus is part of an Earth Day celebration.

“The real benefit of this is that we’re not burning a limited resource of a petroleum product,” he said. “We can grow more soybeans (the major crop used to make biodiesel).”

Schmaltz admits that petroleum-based diesel produces a bit more energy than biodiesel but he said, “The difference is not real noticeable.”

What is noticeable and notable for the engineering professor is the high-octane learning experience that WKU mechanical engineering students are getting by running the biodiesel operation at the WKU Farm.

“Our mission is not to produce biodiesel fuel,” he said. “Our mission is to produce engineers.”

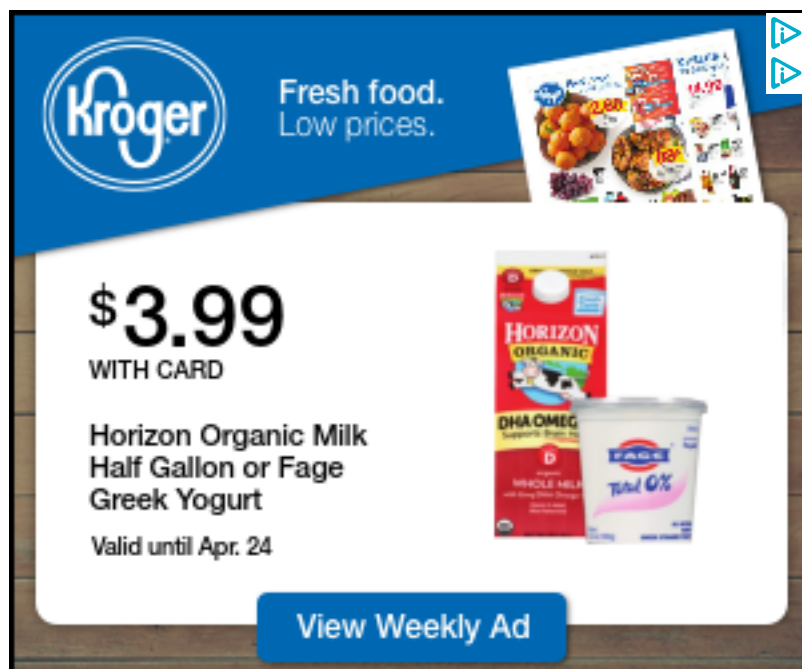
Nine of those aspiring engineers work at the WKU Farm biodiesel facility this semester as part of their senior project, taking used cooking oil from restaurants on campus and turning it into fuel.

“At a commercial biodiesel facility, they would be doing it continuously,” Schmaltz said. “Here it’s a batch process, almost like a mom-and-pop operation. We can take 300 gallons of used cooking oil and convert it to about 200 gallons of biodiesel.”

It’s a process with many benefits, including cost-cutting on an increasingly cost-conscious campus, explained McWhorter.

“Anything that can lower the cost of fuel and give students some real-world experience, especially in this budgetary climate, is a good thing,” McWhorter said.

He pointed out that the biodiesel can be produced only during warmer months. He expects production to shut down in October, when bus No. 13 will go back to using regular diesel fuel. But in the meantime, engineering students will get valuable hands-on experience.

A promotional graphic for Kroger. At the top left is the Kroger logo with the tagline "Fresh food. Low prices." To the right is a small image of a weekly ad. The main part of the graphic is a white card with a blue border. On the card, the price "\$3.99" is prominently displayed in large black font, with "WITH CARD" in smaller text below it. Underneath, the text reads "Horizon Organic Milk Half Gallon or Fage Greek Yogurt". Below that, it says "Valid until Apr. 24". To the right of the text is an image of a Horizon Organic milk carton and a Fage Greek yogurt container. At the bottom of the card is a blue button with the text "View Weekly Ad".

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“It has been a great experience because we’re able to apply theories to real-life scenarios,” said Hayden Delozier, a senior mechanical engineering student from Louisville. “Then in turn it’s helping our campus by running our bus system.”

Students like Delozier are getting an education by working to produce the fuel, but the biodiesel-powered bus is serving as a learning tool for other students as well.

Jennifer Tougas, WKU’s director of parking services, said the bus will be equipped with a series of signs that explain the process of producing the biodiesel.

“We start by feeding students in our restaurants,” Tougas said. “Then we take the used cooking oil and teach students how to turn that into fuel. Finally, we use that fuel to transport students.

“We’ll have seven signs on the bus showing the whole process. It will be like a traveling museum.”

Tougas said the university’s transportation services would welcome an expansion of the biodiesel program to more than the one bus “if they’re able to increase capacity.”

Schmaltz doesn’t rule out such an expansion, but he doesn’t expect that to happen soon.

“It’s possible to expand if we find other sources of cooking oil,” he said. “But that will be a future investigation.”

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