

Biodiesel blend performs as well as ultra-low sulfur fuel

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John Lumkes found that a 20 percent blend of biodiesel fuel performed as well in trucks as the standard ultra-low sulfur diesel. Differences in the fuels' performances were statistically insignificant. (Purdue Agricultural Communications photo/Tom Campbell)

Those worried about a performance drop-off going from standard diesel fuel to the more environmentally friendly B20 biodiesel blend can ease their minds.

A new Purdue University study shows that there is almost no statistical performance difference in semitrailer trucks using B20, a 20-percent blend of biodiesel, and No. 2 ultra-low sulfur diesel, the current standard.

"In terms of performance, reliability and maintenance costs, it was basically a wash," said John Lumkes, the assistant professor of agricultural and biological engineering who led the study. "The only

differences are environmental and economic."

The study, which compared two 10-vehicle truck fleets using the ultra-low sulfur [fuel](#) and B20, was released in the journal Applied Engineering in Agriculture. Trucks used for comparisons in the yearlong study had the same engines, similar miles already on them at the start and drove nearly the same number of miles over the year.

The only statistical difference related to the B20 was that it lowered the oil viscosity between maintenance intervals in engines slightly more than the ultra-low sulfur diesel. But even so, Lumkes said the oil still had sufficient viscosity so as not to damage engine parts.

"They were still within the range of what is acceptable before you need an oil change," he said.

The study followed each fleet's idle time percentage, average speed, engine load percentage and engine speed. Each pair of trucks had close to the same statistics in each category.

At the end of the study, each fleet of 10 trucks had driven more than 1.5 million miles. Differences in performance based on [fuel economy](#), fuel test results, engine oil analysis, and service and maintenance costs were considered minute. B20 cost about 13 cents more per gallon during that time than the ultra-low sulfur diesel.

Lumkes said his study could ease concern about the effect biodiesel has on engine durability. He said some engine manufacturers are wary about extending warranties to those who use biodiesel because not enough has been known about how the biodiesel affects engine wear.

"This shows that there is no observable difference in performance of engines using biodiesel versus the more common commercial fuel,"

Lumkes said.

Lumkes added that the quality of the B20 also is an important factor. All the fuel sampled during the study exceeded the National Biodiesel Accreditation Commission standards.

Source: Purdue University ([news](#) : [web](#))

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