

Gasohol at the pump?

Experts weigh pros and cons of grain-gas mixture

By Mike Scanlon
staff writer

Burning gasohol in old Betsy might make Michigan's farmers happy, and it may reduce imports of crude oil.

But don't expect old Betsy to run better on it, a Society of Automotive Engineers (SAE) meeting audience was told last week.

And that's likely to surprise plenty of Michigan drivers. The state effectively subsidizes the sale of gasohol by reducing the per-gallon tax from 11 cents to five cents, and it's an incentive that seems to work. The latest AAA gasoline price survey shows gasohol five cents a gallon cheaper than unleaded gas statewide, \$1.459 to \$1.509.

State tax collectors say Michigan drivers burned 18 million gallons of gasohol from October 1980 through February.

SPEAKERS AT THE SAE meeting in Ann Arbor included Donald J. Patterson, a professor at the University of Michigan's Walter E. Lay Automotive Laboratory, and James B. Reynolds, general manager of Michigan Agri-fuels Inc., an Alma firm that plans to use Michigan grown grain — primarily corn — to produce ethanol.

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Patterson dealt with gasohol's advantages — or lack thereof — as a motor vehicle fuel. But Reynolds only

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lightly touched on alcohol as fuel, centering his presentation instead on balance-of-trade advantages from reduced oil imports, and using alcohol as a building block for chemical production.

Patterson said design engineers can make an engine run on virtually any fuel as long as that's what they're told to design. But every mass-produced car in America was made by design engineers told to expect power production from gasoline, Patterson said.

That means today's cars were not designed for gasohol, and Patterson said that means its use offers only two clear-cut advantages — helping farmers and stretching supplies of crude oil.

Patterson said gasohol is most acceptable as a fuel for older models which run on a relatively "rich" mix to use Michigan grown grain — primarily corn — to produce ethanol.

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lightly touched on alcohol as fuel, centering his presentation instead on balance-of-trade advantages from reduced oil imports, and using alcohol as a building block for chemical production.

THE DISADVANTAGES to gasohol for those cars, Patterson said, include:

- An average 3 percent decline in fuel economy.

- Increased production of aldehydes, a noxious exhaust gas not now controlled under federal emission standards.

- A negative overall energy equation: "For every BTU (British Thermal Unit) of alcohol we were making, we'd be using two BTU of oil and actually increase our energy problem instead of solving it."

- Cold-weather starting problems.

- Hot-weather vapor-lock problems.

- Long-term durability problems with fuel system components that come in frequent contact with alcohol.

- Chalky streaking of paint on some cars resulting from contact with spillage.

GASOHOL — normally a homogenized blend of 90 percent unleaded gasoline and 10 percent ethanol — tends to separate in cold temperatures, Patterson said. The alcohol is heavier than gasoline and settles to the bottom of the tank.

Since alcohol has roughly two-thirds the energy per gallon of gasoline, cars with carburetors calibrated for gasoline won't draw in enough fuel to run on pure alcohol and may not start if the gasohol separates in the tank. If the car will start, fuel system components designed to be impervious to gasoline may wear much faster when exposed to alcohol, Patterson said.

Gasohol is composed of a lot of elements that begin evaporating at less than 100 degrees Fahrenheit, and are all turned to a gaseous substance by 440 degrees, but Patterson said alcohol evaporates at less than 175 degrees and may cause vapor lock in hot weather.

There's also a "somewhat greater concern for the long-run" engine durability, Patterson said. He mentioned one study that showed 50 percent faster pump-ring wear on a fuel that included 17 percent alcohol.

EVEN THE 10 percent blend causes quicker wear to such things as car fuel tanks and garden-equipment fuel filters, Patterson said, adding, "we just don't know what kind of problems we'd run into in the long run. Fuel pump diaphragms sag, fuel lines swell. Lubrication is a question mark."

"These are questions that may arise after 50 or 70,000 miles," Patterson added.

Consumers who use gasohol for the first time may find it necessary to replace fuel filters clogged with tank

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— Donald J. Patterson
University of Michigan

debris cleaned out by the ethanol, Patterson said.

Most industrial alcohol in America is made from ethylene, a natural gas derivative. Ethanol made from it now sells for \$2.17 a gallon, Patterson pointed out.

From our standpoint, the economics of this doesn't make any sense as a substitute for gasoline. It's sure to demonstrate to the Arabs that we're doing something, but realistically, the economics just don't add up."

REYNOLDS, who expects Michigan Agri-fuels Inc. production to begin within three months, said the company "believes in gasohol, but we're not a gasohol producer. We are an ethanol producer."

"If gasohol doesn't make it, Michigan Agri-fuels will make it. We could go into simply the chemical business, plastics and on and on."

Still, Reynolds said after his speech that the company's production for the

first three years is all committed to gasohol production, and he repeatedly stressed the world's dwindling supplies of crude oil and the uncertainty of future availability. Reynolds said "27 percent or so (of U.S. oil use) comes from unfriendly countries."

He said gasohol isn't a logical substitute for crude oil. While "many people consider alcohol an expander of the fuel supply, I think that's a mistake. We consider it an octane booster."

PATTERSON HAD said some petrochemicals make much more desirable octane boosters, but Reynolds said "other octane boosters are also expensive or scarce."

Reynolds also responded to what he said was frequent criticism that an American grain-as-fuel industry would "starve the world."

"What we do is produce protein," Reynolds responded. "The children of Biafra didn't starve because they didn't have enough starch."

OCC costs below budget — so far

They're probably looking for the cloud at Oakland Community College after finding the silver lining in last week's budget-update report.

OCC is spending money more slowly than anticipated.

With 71 percent of the June 30-July 1 fiscal year already gone, only some 53 percent of the college budget has been used.

Total budget for the 6,700-student college this year is about \$28 million. Only about \$18 million has actually been spent so far, but another \$6.3 million has been committed but not actually paid out.

That leaves an unencumbered balance of some \$4.2 million.

Most budget categories didn't stray far from the average 53-percent expenditure mark, but an exception was general instruction, where not a penny of the budgeted \$402,000 has yet been spent.

But that's the result of accounting practices, administrators said. The general-instruction account doesn't really cover general instruction. Instead, it's used for miscellaneous expenses

like part-time faculty or summer employees. Those salaries are paid by after finding the silver lining in last week's budget-update report.

OCC President Robert Roelofs said he was reasonably pleased with the budget figures, and added that the numbers so far bode well for the year as a whole.

"I expect that we will come in somewhere under budget, that's certainly what we're trying to do," Roelofs said, adding, however, "I doubt if it will come in as far under the current status."

OTHER SPENDING areas included:

- Liberal arts at 62 percent of budget, having spent or promised some \$9.7 million of a budgeted \$15.6 million
- Vocational, with spent and promised funds totaling some \$2 million of a budgeted \$2.3 million
- Health, spent and promised funds totaling \$643,000 of a budgeted \$994,000.

- Student services, spent and promised funds of some \$5 million of a budgeted \$5.9 million.

- Institutional support, spent and promised funds of about \$3 million of a budgeted \$3.4 million.

- Operations and maintenance, budgeted at \$3.1 million, has spent or promised to spend some \$2.7 million.

- Security services budgeted at \$407,000 has spent or promised some \$325,000. Security, with 75 percent of budgeted funds spent through the first 71 percent of the fiscal year, was the only listed budget category where spending was running faster than the clock said it should.

Utilities, budgeted at \$1.3 million, has spent or promised some \$900,000.

Fatty foods tied to cancer?

A Wayne State University chemistry professor is investigating a chemical reaction which may provide the link tying the consumption of fatty foods with some kinds of cancer.

In test-tube experiments, Dr. Lawrence J. Marnett discovered that an enzyme found in the human body, prostaglandin synthase, reacts with molecules of polyunsaturated fats and common environmental compounds to produce derivatives which cause tumors.

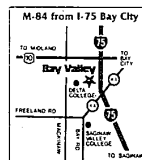
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