

Michigan Biomass Energy Program **State Project Summary**

“Production of Ag-Based Biodegradable Motor Oil”

Total Grant amount: \$77,687
MBEP Contribution: \$20,600
Grant term: December 23rd, 1998 to December 23rd, 1999
Grantee: Michigan Innovative Farmers Association
Great Lakes Oil Company
Principal Investigator: Clancy Eldredge
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Problem

- Damage to soil and water from improper disposal of used motor oils and emissions from vehicles can be significant as the EPA estimates that each year millions of gallons of used petroleum engine oils are not recycled or disposed of properly.
- Many farmers are having a hard time making farming profitable. In Michigan there is over 800,000 acres of under- or unutilized farm land, as well as an annual revenue loss of over \$500 million.

Project Summary

- Demonstrate the viability and emissions reduction from the use of AMG 2000 a 100% biodegradable, vegetable-based motor oil and lubricant through vehicle testing.
- Approximately 40 U.S. Postal Service (USPS) vehicles and 15 other vehicles has participated in the vehicle studies.
- AMG 2000 motor oil is placed into the test vehicles, oil changes are performed on a regular basis and vehicles are analyzed for emissions, oil consumption, engine wear and gas mileage compared to petroleum-based oil testing results.

Findings

- Testing by the USPS found emission reductions of 66% for hydrocarbon and 83% for carbon monoxide. Further analysis found that if AMG 2000 was used in the entire USPS Michigan fleet there would be a hydrocarbon reduction of 30,000 lbs. and a reductions of 814,000 lbs. of Carbon Monoxide per year.
- There was also reduced oil sludging and engine wear and a 90% reduction in oil consumption in vehicles that participated in the vehicle testing.

Potential Benefits

- Provide farmers with an alternative crops and additional profits from growing soybean and canola for production of the oil.
- Reduction of soil and water contamination/pollution from oil spills and illegal disposal of used oil, improved air quality from emission reductions and reduction on the reliance of foreign oil.

Future Research & Projects

- Phase II of the project will consist of further vehicle testing on vehicles from MSU, WMU, Consumers Energy, MI Dept of Agriculture, USDA and 28 Michigan legislators.
- USPS has indicated they are interested in using the oil in areas that are in non-attainment for EPA air quality measures and other environmentally sensitive areas.
- Will be launching a project with the National Parks Service at Picture Rocks National Lakeshore Park to use their biodegradable oil in park vehicles, boats and snowmobiles.