Industry News

Vegoil fuel hurdles remain

Durability, cost and quality control are the three major question marks remaining on the use of vegetable oil as a diesel fuel for farm equipment.

Short-term performance of vegetable oils appears satisfactory, according to academic researchers and equipment manufacturers who participated in a seminar during late April in Peoria, Illinois.

Farmers looking for a fuel they can grow and manufacture on the farm may face disappointment, however. Engine manufacturers say they don't think on-farm production would produce fuels of sufficient quality to meet engine warranty requirements. Co-op level processing may be possible, however.

Reports on research throughout the United States and abroad indicate vegetable oils' short-term performance in diesel engines is satisfactory, although more vegetable oil than diesel oil is needed to run an engine for a given period of time.

The major problem with using vegetable oils in diesel engines at present is the higher viscosity of vegetable oils, several speakers said. It does not appear practical to modify fast-running diesel engines' design to accommodate a higher viscosity fuel, Norm Sauter of John Deere, chairman of the Engine Manufacturers of America's Alternate Fuels Committee, told the Peoria group.

John Bailey of Caterpillar said his firm's prime concern in looking at alternate fuels is availability, and shale oil appears a more likely source for alternate diesel fuel than does vegetable oil. Caterpillar's precombustion diesel engines perform satisfactorily on crude, degummed soybean oil, he said, but the turbocharged version of the same engine showed wear and carbon deposit above acceptable limits. Work on methyl esters of rapeseed oil has been encouraging, Bailey said.

Everett Pryde of the Northern Regional Research Center noted that to lower viscosity of vegetable oils, you can lower the molecular weight, use more unsaturated oil (which increases oxidation problems) or raise the temperature. Dr. Pryde said it appears esters provide the most suitable modification of vegetable oils for use as diesel fuels because such compounds approach the viscosity of diesel fuel and, if polymerization occurs, it is two-dimensional and does not produce the gelation that can occur with regular vegetable oils. The process of producing methyl esters of vegetable oils is not suitable for on-farm technology, Pryde said.

The next step needed, he said, is for engine endurance tests to be conducted according to specifications of the Engine Manufacturers' Association.

Other speakers during the seminar presented results of short-term engine tests, usually using oil from locally grown oilseed crop. Kenton Kaufman of North Dakota State University reported on work with sunflower oil, Franklin Harris of the University of Missouri on work with soybean oil, Carroll Goering of the University of Illinois on various vegetable oil blends, Charles Peterson of the University of Idaho on use of safflower and rapeseed, and, in a tape-recorded report, William Chancellor of the University of California on vegetable oil and methyl esters for fuel.

Several speakers noted cetane tests generally evaluate vegetable oils at a lower level than they perform in diesel engines. Modifications may be developed to provide more accurate evaluations.

A technical meeting on use of vegetable oils as diesel fuels is scheduled for Oct. 20-21, 1981, at the USDA Northern Regional Research Center in Peoria. An international meeting on use of plants as fuels oils will be held during August 1982 in Fargo, North Dakota, under auspices of the American Society of Agricultural Engineers. □

New Capital City plant

A new vegetable oil chemical specialties plant, the Armstrong Chemical Plant, has been opened in Janesville, Wisconsin, by Capital City Products Company, Division of Stokely-Van Camp Inc. Capital City also is constructing a $25 million vegetable oil refinery in Kearny, New Jersey, which is scheduled to be completed later this year. □

Contract announced

Brazil's Process Engenharia of Ponta Grossa has announced it has been asked by a developing African nation to provide technical assistance in the design and installation of a vegetable oil extraction facility. The firm presently provides technical assistance to 20 plants throughout Brazil and in other nations. □

English activated earth plant dedicated

A new £5 million activated earth plant built by Laporte Industries Ltd. in Widnes, England, was formally dedicated this spring. The plant, the only one of its type, can produce 30,000 to 35,000 tons of activated fuller's earth a year, with about half that production to be exported. Laporte says its fuller's earth is used in production of fats and oils and related products, flame-resistant plasticizers, lubricants, as well as insulating oils for electrical equipment. The plant replaces an older Laporte facility. □