

## Farmer Runs Tractors On 100% Soybean Oil

There's no energy crisis for Iowa farmer Don Brahms, of Cumberland, who says he's got all the energy he needs growing right in his soybean fields.

Brahms, with the help of a local implement dealer, has been burning 100% soybean oil in his diesel tractors and reports a 30% increase in power over diesel fuel. He's convinced soybean and other vegetable oils, not alcohol, will solve the problem of powering diesel farm engines.

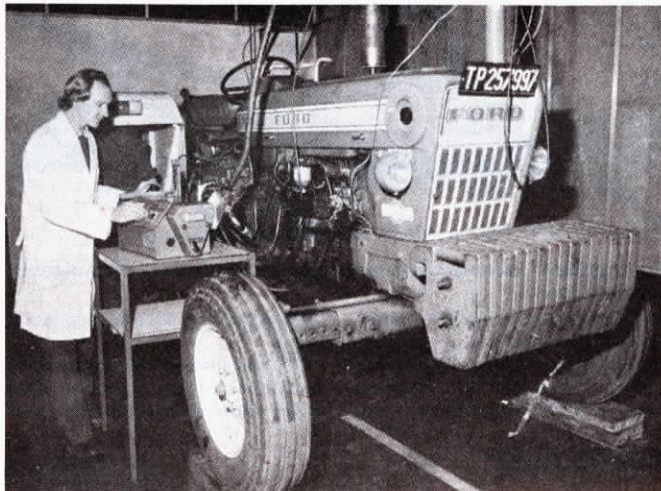
"No one's found a way to burn alcohol in diesels, except through turbochargers or as a 10% mixture with diesel fuel. Raw soybean oil burns 100%," he told FARM SHOW.

Soybean oil first got into Brahms' fuel tanks as a lubricating additive for alcohol but he found that the oil-alcohol mix lowered his International MD's horsepower output by some 30%, so he kept increasing the share of oil until no alcohol was left. That's when the dynamometer reading jumped to 85 hp., 20 hp. beyond the normal 65 hp. output of the tractor with diesel fuel.

"Runs smooth and powerful and the exhaust smells sweet — like cooking oil. The injector pump may have to be set back to avoid overloading the engine but no other changes seem to be needed. The oil is raw — you can see sediment floating in it," says Brahms.

Along with fellow inventor Merlin Scarf, of Melglen Equipment, Anita, Iowa, Brahms buys soybean oil for around \$2.00 a gal. Current market price, according to Cargill, Inc., is around \$1.90 a gal.

"That sounds expensive, but you could set aside 10% of your crop, process the oil yourself — if manufacturers develop farm-size mills for extracting oil — and burn it right on the farm. You'd have a 23 to 24% protein mix left over for livestock. And sunflowers may compete even better with diesel fuel than soybeans," he told FARM SHOW.



This Ford diesel is one of several tractors which experimenters in South Africa are running on pure sunflower oil.

On-farm oil extraction, according to Brahms, would not even have to be very efficient. "Even if you only get 90% of the oil, it won't matter if you feed the residue to livestock," he points out. "Soybean oil has some 130,000 btu's compared with alcohol's 82,000, and since it should take less btu's to extract the oil than to distill alcohol, net energy produced will exceed that of grain alcohol."

Brahms and Scarf are now experimenting with a newer Allis-Chalmers D-19 tractor, equipped with a Roosmaster injector pump. They plan to test tractor output on 100% soybean oil, as well as with mixtures of oil with alcohol and oil with straight diesel fuel. Tests may also be conducted in the field this spring.

For more information, contact: FARM SHOW Followup, Don Brahms, Cumberland, Iowa 50843 (ph 712 744-5845), or Merlin Scarf, Melglen Equipment, Anita, Iowa 50020 (ph 712 762-4443).

RBA Seeds, in Olivia, Minn., has

burned sunflower oil in both gas-powered pickups and in stationary diesel engines as part of research to develop sunflowers as an alternative fuel. Dr. Harban Sraon, until recently a researcher at RBA and now an independent energy consultant in Lakewood, Colo., directed both experiments.

"We ran a brand new gas-powered pickup on a mixture of alcohol and sunflower oil," Sraon told FARM SHOW. "We used just 1% oil, though, to act as a lubricant and to show that it would burn. We also learned that the oil does not separate in an alcohol mix."

Last fall, at a state energy fair, RBA researchers ran a 16 hp. stationary diesel engine on 100% sunflower oil without modifying the engine. "We just cleaned diesel fuel out of the tank and filled it up with oil," relates Sraon. "It smells sweet when burned — like something on the stove and people stopped by to see what was cooking."

Sraon, who is a naturalized American, says that in his native India, farmers have long made their own "fuel" from oilseed crops. "Many farmers own inexpensive, wooden oil presses. The units cost maybe \$100 to build and are designed to remove mustard seed oil," explains Sraon. "They use the oil for cooking, burning in lamps and heat. There's no reason electric or tractor-powered, farm-sized presses could not be developed in the U.S."

For more information, contact: FARM SHOW Followup, Dr. Harban Sraon, 1827 S. Welch Circle, Lakewood, Colo. 80228.

The South African Department of Agriculture is probably the leading innovator in the just-developing field of soybean and sunflower experimental fuels. Technicians there have run several tractors for more than 100 hours on 100% sunflower oil and report little difference in performance from standard diesel fuels.

Research engineer J.J. Bruwer says tests with the new fuel in a Ford 7000 diesel, operated at full capacity, have proved consumption to be nearly equal to that of diesel fuel. Costs, at least in South Africa, have been penciled out to about the same price as diesel fuel, when grown and used by the farmer himself.

One problem researchers found was that prolonged use of raw vegetable oils causes a build up of deposits in engines, but they say the problem is cleared up by running a tankful of diesel fuel through the machine periodically.

For more information on South African experiments, contact: FARM SHOW Followup, Hendrik Schoeman, Minister of Agriculture, Dirkuys Building, Private Bag X250, Pretoria, Republic of South Africa 0001.

### NON-TOXIC AND LONG LASTING

## Insecticide Paint Kills Flies, Bugs

Latest new weapon for fighting flies, spiders, cockroaches and dozens of other troublesome insects in the home and around the farm is "Insecticide Paint."

"It has virtually all of the features and flexibility of regular latex paint, plus the exclusive ability to provide long lasting insect control," Pat Quinlan, sales manager for the Artelin Co., developer of the product, told FARM SHOW.

The Canadian-based company has developed a special patented process for incorporating insecticides into built-from-scratch latex paints. Insecticide Paint is being marketed in

Canada and other countries. "We anticipate having it available in the U.S. later this year," reports Quinlan.

The paint's deadly effect on insects lasts for the normal 2 to 4 years life of a coat of high quality latex paint. It's odorless 48 hours after application, non-toxic to humans ("you can paint the walls of a children's nursery with it"), washable, colorfast and easy to apply, Quinlan told FARM SHOW.

"Thousands of insecticide particles are incorporated into the paint during manufacture. When an insect rests on the painted surface, contact by its feet causes the insecticide particles to dissolve because of glandu-

lar secretion from the insect. Eventually, an insect absorbs a lethal amount of insecticide and dies. Thus, it kills rather than simply repels flies and other insects," Quinlan explains.

He notes that the new paint is used in the same manner as regular paint for interior walls and ceilings in the home, and for outdoor use, such as along the foundation or windows, on inside or outside barn walls, and on the lower trunk of trees in orchards to protect against certain insects.

Insecticide Paint comes in white but can be colored with pigment (up to 5%). Like regular paint, it can be applied with brush, roller or airless

spray. It can't be mixed with other paint and two coats are recommended. Washing a painted wall with clear, lukewarm water will restore a top coat of Insecticide Paint to full effectiveness of the insecticides — even several years after its application, the manufacturer points out. "About the only restriction is that the product can't be used on surfaces which would be in direct contact with food," according to Quinlan.

Sells for \$24 per gal. in Canada, which is about 10% higher than the going U.S. rate for latex paint of comparable high quality.

For more details, contact: FARM SHOW Followup, Insecticide Paints, Artelin, Inc., 35 Allen Street, Waterloo, Quebec, Canada JOE 2N0 (ph 514 539-2813).