

He Helps Farmers Become Energy Independent

By Jim Ruen, Contributing Editor

Doug Fluit's mission in life is helping farmers grow and produce their own fuel. He says equipment is now available to make it a very practical proposition to make your own fuel for powering diesel machinery or electric generators.

"Years ago, farmers used 20 percent of their land to produce hay and grain for their horses," says Fluit, who markets the do-it-yourself Cropland Biodiesel system. "Now we can get the fuel we need with just 10 percent of our crops."

Best of all, he points to a variety of government incentives that can reduce the out-of-pocket costs for fuel-making systems. These include the \$1/gal. IRS tax credit, USDA cash grants, and USDA loan guarantees.

Fluit sells a variety of turnkey systems designed to run 24/7 and produce from 100 to 15,000 gallons of biodiesel per day. His thermostatically-controlled systems heat oilseed to the correct temperature for maximum oil release when extruded. The oil is then pumped into one of two processing tanks where methanol and potassium chloride (potash) are added and circulated. Fluit prefers potash to the more commonly used lye, as it is less hazardous to the operator and the environment. Potash is also biodegradable, less expensive and easier to find.

Oil settles out, and impurities (glycerin) are pumped out. The oil is then pumped through a second processing tank where a custom-

built water wash system further purifies the oil.

Fluit says his systems have proven themselves since he began importing them from China 2 1/2 years ago. He has sold close to 50 machines and says the only problems have occurred while breaking in operator and equipment.

"The biggest problems are at start up," he says. "People start ramming and jamming oilseeds through too fast."

Once the system and the operators are broken in, Fluit says there are few problems. Even letting a unit run unattended for several days is acceptable. "Just heat it up and start," he adds.

One concern with even commercial biodiesel is purity. Fluit says that is not a problem with his units. "Cleanliness is always a big factor," he emphasizes. "If you are trying to meet industry specifications, simply run it through the processor a second time, but with only 20 percent of the chemicals. You'll get the rest of the glycerin out."

Any oilseed can be used in the Cropland Biodiesel systems. However, Fluit encourages his customers to try crops other than soybeans. "Soybeans at 12 to 15 percent oil content are at the bottom as an oil source," he says. "Sunflower and canola are good, and camelina is coming on strong, especially on marginal land. Cottonseed also has a lot of oil in it, but you have to pull the lint off first or it will wick the oil back up."



Doug Fluit sells a variety of turnkey systems designed to let you produce your own biodiesel fuel.

Fluit says he has a cotton seed delinter that he is experimenting with. He hopes to have it running with a large system he is building that will use exhaust from a biodiesel powered generator to heat the seed for pressing.

One sign of customer satisfaction, adds Fluit, is customers coming back to add a larger system to the one they started with. "Most guys like to start small to get their feet wet, then add a second and third system," he says. "They'll start with a 300-gal. system and then go to a 500-gal. system."

Cropland systems can be powered with either electric or diesel motors. Most smaller

systems run with electric motors, notes Fluit. Prices vary from \$2,950 to \$10,000 or more, depending on size and type of motor. The CLB-300 system can produce 200 to 300 gal. per day. It includes an electric heated press, two 115-gal. processing tanks with water wash systems, a 5 hp electric motor or a 7.75 hp diesel motor and two 500-gal./hour processing pumps. Price is \$7,950 plus shipping.

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Forklift Tractor Built From Garbage Truck

Nathan Strubhar's home-built bale handling loader tractor can pick up and stack six 3 by 4-ft. big square bales three high on a semi truck, or nine high in a barn.

"It's better than a conventional loader tractor because it goes much faster down the highway, in fact over 60 mph, and can lift big square bales up to 27 ft. high," says Strubhar.

He converted an old garbage truck into the "reversed", heavy duty forklift tractor. They use the rig in their baling and hay hauling business which serves the export market.

"We decided we could save a lot of time and haul more bales if we had a machine that would both load and unload the bales real fast," says Nathan.

The truck has two steering wheels, and the driver uses two separate sets of controls - the forward facing ones for highway use, and another set of controls for operating the 3-stage forklift mast equipped with a squeeze clamp. When using the forklift, the driver just slides across the cab into the seat on the opposite side, which faces the opposite direction and has its own set of operating controls.

The forklift is powered by a hydraulic pump that's driven directly off the truck's crankshaft. Hydraulic control levers for the forklift mount next to the seat. The clamp can

be moved side-to-side by a hydraulic cylinder, and it can also be tilted up and down. There's a moon roof in the cab to see up above when stacking bales.

"We can load a semi truck with double trailers in nearly five minutes," says Nathan.

He started with a 1979 garbage truck powered by an IH DT466, 220 hp diesel engine and Allison automatic transmission. He stripped the truck down to the frame, reconfiguring just about everything on it. "Virtually nothing on the truck is original except for the engine. Even the body and cab are home-built," says Nathan. "We converted the automatic transmission to an electronic shift transmission. It lets us switch gears by simply pressing a switch."

The machine is equipped with the same type of exhaust system found on semi tractors - a 4-in. dia. pipe on top of a 12-in. dia. muffler.

Nathan says he spent about \$50,000 to build the loader tractor, which includes the \$3,000 he paid for the garbage truck. "A comparable new machine like this would sell for at least \$150,000," he notes.

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Nathan Strubhar's home-built forklift tractor can lift big square bales up to 27 ft. high.



Loader tractor can pick up and stack six 3 by 4-ft. big square bales three high on a semi truck or nine high in a barn.

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