



Two huge claws reach out in front to rake trash into the throat of the machine.

CUTS, GATHERS AND TEARS IT UP

Huge Wood "Harvester" Turns Trash Into Energy

Bob DuBose's mammoth new wood harvester travels at speeds up to 5 mph, gobbling up trash like a kid eats ice cream.

Built from the ground up and mounted on D-4 Caterpillar tracks, the new wood harvester was designed by the California inventor and manufacturer primarily for clearing up the millions of tons of wood trash trimmed from trees in orchards every year. But, when equipped with a heavy-duty cutting blade across its broad front, it also clears land of scrub trees and brush, turning everything it picks up into a shredded wood material that's used as a power source for electric power generating plants.

In orchards, where trash is usually raked into big piles and burned, the low-profile harvester moves up and down between rows of trees. Two big reciprocating claws that reach out 7 ft. in front of and 7 ft. out to the side of the harvester, pull material into the huge throat of the machine, breaking anything that's too big to fit. Three feeder chains with knife teeth attached pull the trash back into the machine where big rollers crunch it all up and feed it to a hammermill with 24 50-lb. hammers spinning at 130 mph.

Depending on the size of the screens fitted to the hammermill, the wood comes out the back with the diameter of a pencil and anywhere from 3 in. long up to 1 ft. Once processed, a rear auger carries the shredded wood out to trailing wagons.

The harvester has a 600 hp. engine and the capacity to handle up to 15 tons of material per hour. It'll handle trees up to 6 in. in dia., and occasion-

ally chunks that are much larger, traveling at 5 mph. A 5-ft. dia. flywheel provides power to the hammermill, which is outfitted with knives on the hammers on the land clearing machine to handle the tougher material.

"As the price of electricity increases, interest is building for a way to use wood wastes. Because the materials are so bulky, we've had to automate all the equipment to keep labor at a minimum," DuBose told FARM SHOW. He says he gets about \$22 a ton for the processed material and charges the growers \$6 to \$8 a ton for removing it. For land clearing, he charges \$150 an acre cleared.

Because air pollution regulations are getting more restrictive, DuBose says growers are looking for alternatives. "They can't have anything on the ground in their orchards, yet they usually aren't allowed to burn the trash. Also, conventional ways of removing trash often compact the soil around the roots of the trees. Our machine only applies 7 lbs. of pressure per square inch and only makes one pass through," says DuBose.

"The company also makes a large "wood fuel shuttle" that is specially designed to run behind the harvester and dump into roadside trucks. DuBose suggests operating two shuttles for every harvester.

The harvester sells for \$275,000 while the shuttles sell for \$40,000 apiece. A special truck-filling conveyor sells for \$22,000.

For more information, contact: FARM SHOW Followup, Tink, Inc., 2361 Durham-Dayton Hwy., Durham, Calif. 95938 (ph 916 895-1806 or 895-0897).



Wood gas from burner, left, goes through a series of scrubbers before it's pulled into the unmodified engine up front.

ALSO RUNS ON CARDBOARD, CORN COBS

Wood-Powered Car's A Real Traffic Stopper

When Dan Adastik takes to the highway between the towns of Lowell and Ada, Mich., he knows there will be a traffic jam. His wood-powered car always draws stares and questions from curious motorists.

Dan and his father Al are both inventors who've come up with lots of energy-related equipment to heat and provide electricity for their homes and shops. The wood-powered car, their latest project, is powered by the smoke and gases given off by burning wood, or any combustible material, fed into the car's rear burner.

The car is a 1966 Dodge Charger with a 318 cu. in. engine. Mounted on the rear bumper is a 3-ft. high burning chamber. After wood is loaded into the fire chamber and lit, the burner is sealed shut. A small blower is used to speed up the fire.

The gas comes out of the burner and runs through two water "scrubbers" that remove the tars from the wood gas, and a cooler. A pipe carries the gas into the engine compartment through the front left fender and to the intake manifold. No modification of the engine was needed to run on wood gas.

"The whole system operates on the vacuum of the engine — no other power source is needed," says Dan. "As the fire gets going and gases are generated, the vacuum from the engine pulls the gases through the filters, up to the engine and into the intake manifold."

Dan starts the car on gasoline and switches over to wood-gas on the go. It takes about 8 min. to get a good fire burning. Levers inside the car control the amount of gas, air and wood gas that are drawn into the engine. On the highway, the Adastiks get about 1 mile per pound of wood.

"It loses a little power when I switch over to wood gas but I can go at 55 mph," says Dan. "I'm planning to mount the next system on a larger car with a bigger motor. The system

will work even better on a high-compression engine."

One of the problems with the wood-burning car is that it requires chunks of fist-sized wood in order to burn properly. Wood chips are too small and there's no room for big logs. He's been looking for a machine that'll rip logs into the right-size chunks.

Dan made the converted car two years ago to commute to a job 17 miles away. The car can often be a nuisance because everyone wants to take a look at it, making it hard to get anywhere.

He says it's surprising just how well the engine runs on smoke from the wood burner. "We can burn just about anything from cardboard to corn cobs to garbage and keep the car running."

In addition to his experimental car, the Adastiks are also heating a building experimentally with the exhaust off a Ford Pinto engine. The engine, which powers an 8,000 watt generator, can run on wood gas, like the car. They use the electricity in their house and shop and take the heat off the engine by wrapping water coils around the exhaust manifolds and running pipes into their shop to a radiator. Dan says it puts out an "amazing amount of heat. The engine runs on anything from corn cobs to cherry pits to dried manure. Automated controls can be mounted on the engine so that it starts when heat and electricity are needed, running on stored wood-gas or methane. Electricity can be stored in batteries."

Dan and his father also manufacture phase converters that let you run 3-phase motors on single phase power.

For more information, contact: FARM SHOW Followup, Adastik Engineering & Supply Co., 2186 Grand River Dr., Ada, Mich. 49301 (ph 616 363-4790).

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