Floyd Yoder's skid loader-mounted fence post driver works fast, hammering posts like a jackhammer at 800 pneumatic blows per min.

Unit's domed hammer handles wood, steel, pipe and T-posts equally well.

Skid Steer Post Driver Works Like A Jackhammer

Montana fencing contractor Floyd Yoder looked for a simple and hardworking fence post driver to mount on his skid steer for several years but could never find one he liked. One day he was driving posts into the ground so hard he thought he'd need a jackhammer to get the job done. That spurred him to start building his own driver.

Yoder's first machine was twice as large as the one he had been using. Still, it didn't have the power he needed, so he refined and rebuilt it during the next 4 years. When neighbors saw how well his machine worked they wanted one. Now Yoder's company manufactures 3 drivers with 500, 750 and 1,000 ft. lbs. of energy. All of them work with a unique jackhammer-type action that typically hammers posts at the rate of 800 pneumatic blows a minute. The 500-lb. model is made with a 5/8-in. plate steel frame and the 2 larger models have 3/4-in. frames. Oil flow of 8 to 16 gpm is needed for the model 500, 12 to 21 gpm for the 750 and 14 to 26 gpm for the 1000.

Yoder's Montana Post Driver handles wood, steel, pipe and T-posts equally well. His largest model, which weighs 2,000 lbs., mounts on skid steers 75 hp or larger. All 3 models are made of heavy duty steel and have only 2 moving parts and a single grease fitting. The domed hammer holds a post securely while the operator views the plumb line to center, level and align the post before its driven. The plumb line also serves as a depth gauge.

In addition to its ruggedness and simplicity, other important aspects of the driver is its ability to set and drive posts on either side of strung wire. All parts of the driver are above the post and won't interefere with the wire as posts are set. When the driver is mounted on a skid steer, the steel frame doubles as a rack to carry several posts to a job site.

Yoder says his driver has a low center of gravity, so it rests on the ground when it's removed from a skid steer. He says some competitive models are top heavy and need to set against a building or frame, so they remain upright when disconnected.

Yoder is proud of the fact that he sources the steel and other parts for his machine from the U.S. The hydraulic drive unit, for example, comes from Arrow Head Rockdrill in California. Suggested prices are $11,000 for the model 500, $13,000 for the model 750, and $15,000 for the model 1000.

Contact: FARM SHOW Followup, Montana Post Driver, 2514 Gold Creek Road, Gold Creek, Mont. 59733 (ph 877 539-0317; www.montanapostdriver.com).

Photo courtesy Rolf Hagberg, Agricultural Utilization Research Institute

Mobile on-site gasifier makes biochar from multiple feedstocks. It was developed using parts from an old wood furnace and a combine.

Mobile Biochar Maker Processes On-Site

By Jim Ruen, Contributing Editor

Char Energy›s mobile gasifier makes biochar on-site from multiple feedstocks and for multiple uses. The processor is like no other on the market. It is so different that it sailed through the patenting process without a hitch.

"We were told patenting would be expensive and take years," says Curtis Borchert, Char Energy, LLC. "It took only 18 months and less than $1,000. Our attorney said it went so fast because nobody contested a single claim."

Borchert, Brian Borgen and Noah Storslee developed their prototype unit using parts from an old wood furnace and a combine. The Char Energy gasifier augers biomass through horizontal tubes in a heat chamber that bakes the biomass. As the biomass passes through, biochar and syngass are produced. The syngas is fed back through the machine to help fuel the process.

"We can use the syngas in the gasifier or pull it off for use as an energy source," says Borchert. "We even use the syngas to fuel the process."

They were warned that oil and tar from raw wood gas could plug up motors, but they've had no such problems with theirs. Borchert suspects it's because the biochar filters the gas as it is drawn off.

"We have used the syngas to run a 3,500-watt generator for 12 hrs.," he says. "We just took the carburetor off and put a butterfly valve on it. Once it started, it ran beautifully."

He also notes that the process eliminates a problem with most gassifers that are unable to produce uniform biochar due to varying temperatures and humidity levels. "We bank ours, set the temperature at 750 degrees, and control it precisely, regardless of moisture content or outdoor temperatures," says Borchert. "If the temperature dips, the augers stop until the temperature recovers. We get a very uniform product."

Borchert admits the process is slower than other systems. However, those systems consume up to a third of the biomass as it burns. Their baking process produces an equal volume of biochar for each unit of biomass that enters.

"The biochar that comes out is 75 percent carbon, with most of the remainder silicate," says Borchert. "It can be used like coal."

He estimates their mobile 9-tube gassifer could process up to 900 lbs. of biochar per hour. It would be priced at about $40,000. The process is size neutral and could be upsized significantly in a permanent facility.

"We designed the mobile unit so it could be set up in a field where the biochar would be spread," says Borchert. "It could be moved from field to field as well as farm to farm."

Borchert admits that the prototype is rough and without any insulation. As it is, burning a single wood pallet every half hour will keep the process at 750 degrees.

"If we insulated it, the syngas alone would likely be enough to keep it at temperature," says Borchert.

Contact: FARM SHOW Followup, Char Energy, LLC, 2852 170th Ave., Ada, Minn. 56510 (ph 218 784-3104; www.char-energy.com).

New Uses For Biochar

Char Energy is working with Minnesota's Agricultural Utilizations Research Institute (AURI) to find new markets and uses for biochar, says the company's Chris Borchert.

One promising use is as an absorbent for spilled oil. An ounce of Char Energy's biochar made with sugar beet pulp soaks up 20 grams of oil, but won't absorb water. An oil company is now testing it for use in the North Dakota oil fields.

"We think we could run the oil-soaked biochar back through the process, burn off the oil and retain the original biochar," says Borchert. "You can also burn biochar in a charcoal grill in place of charcoal briquettes."

The AURI researchers also discovered that not all biochar is the same. While sugar beet pulp-based biochar is great for absorbing oil, wood biochar isn't. It has only a 1:4 absorption ratio. However, wood biochar may be better for use as a soil amendment because sugar beet biochar appears to lock up phosphorous in the soil.

Borchert says they're also exploring the use of biochar as a soil amendment, the reason he first tried making it. "The idea to make it came when my wife wanted to try some in her garden," says Borchert. "It is thought to enhance microbial colonies in the soil and increase soil quality and crop yields."

Borchert has tested it on apple trees. He sterilized the soil around some trees before adding biochar to the soil. "The trees with biochar leafed out 2 weeks ahead of those without," he says. "Last year, we planted 2 pumpkin plots with biochar and harvested more than 800 lbs. of pumpkins from them. We even put some in our chicken nesting boxes. Ammonia levels were reduced, and they quit eating their own eggs."

Biochar can be made from such products as sugar beet pulp and wood and has many promising uses, including as a soil amendment or as an absorbent for spilled oil.

People wanting to try the baked biochar can order it direct from the company website or by phone. Sugar beet pulp biochar is their first product. It is priced at $50 for 5 gal. or $15/gal.

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