

Home-Built System Pumps Manure Up To A Mile Away

To get hog manure onto his crops, Mike Kohnen, Pomeroy, Iowa, spent two years putting together a low-cost system that pumps manure up to a mile away to a tractor-mounted injector.

Kohnen custom-feeds 2,800 hogs and must deal with a 1.9 million gal. lagoon. His home-built system uses 1 mile of 6-in. dia. feeder hose and 1/4 mile of 5-in. dia. drag hose that he pulls behind his tractor-mounted injector. A heavy-built reel can carry all 10,000 lbs. of hose.

"Cost of a commercial hose reel alone would have been astronomical," Kohnen notes. "I never attempted anything this involved before so every piece posed its own peculiar challenges to build. I just kept hoping everything would work. With all but a few minor start-up problems, everything has worked even better than I expected."

To make the hose reel, he first bought an old cement mixer truck and stripped it down, keeping only the rear axle, tires, frame and mixer drive assembly. The mixer drive now attaches directly to the 9-ft. dia. reel, which he made out of 1 7/8-in. tubing. A tractor pto drives the truck's transmission, which mounts backwards in the truck frame. The transmission drives the truck's original hydraulic pump, which in turn drives the chain and sprocket on the big reel.

An oil flow lever on the hydraulic motor forwards, reverses, speeds up or slows down the reel.

Other pieces of Kohnen's innovative manure handling system include a high pressure pump, feeder pump, agitator and injector unit.

The high pressure pump mounts on an old single-axle White Freightliner semi tractor equipped with a 318 Detroit Diesel engine. He cut off the truck cab and mounted the engine at the middle of the chassis. He built a frame to mount a Cornell high pressure pump on one side of the transmission. A 12-in., 8-grooved pulley mounts on the transmission's rear output shaft and belt drives a 9-in., 8-grooved pulley mounted on the pump, which runs at an ideal 2,400 rpm's while the engine runs at 1,800 rpm's. It pumps 1,000 to 1,100 gal. of manure per minute at 110 to 115 psi's.

A 60 gpm hydraulic pump mounted on the same shaft as the 12-in. drive pulley on

the main pump powers Kohnen's 43-ft. feeder pump that draws manure out of the lagoon. He built it using a 40-ft. long, 8-in. dia. grain auger. Two 3 by 6-in. impellers mount at the end of the tube inside a cage. The feeder pump mounts on the axle and is equipped with wheels off an old stalk cutter so it can be easily backed into the lagoon. "It will pump more than the main pump can handle," Kohnen says. "So I rigged up a slide door that works like a pressure release valve right near the hydraulic motor. A 40-ft. handle connects to the slide, allowing me to open it and pump some material back into the lagoon to avoid damage to the hose."

Kohnen agitates his lagoon for two hours before he begins pumping, then keeps moving the agitator around the lagoon. The agitator is 43 ft. long with a 6-ft. dia., four-blade propeller mounted on a hub connected to a driveshaft made of 3 1/2-in. dia. heavy wall tubing. Propeller blades were cut out of 1/2-in. thick by 2-ft. wide sections of I-beam off a grain elevator scale. The agitator mounts on wheels off a A2 Gleaner combine. It uses a final drive from an L2 Gleaner combine for a gear box to achieve the right gear reduction. It's equipped with custom-made plastic bearings that Kohnen says wear better and cost less than steel. Kohnen uses a 150 hp tractor to turn the agitator's propeller at 100 rpm's.

The injector he built injects 1,000 gpm at 4 to 6 in. deep traveling up to 3 to 3 1/2 mph. He built it out of parts of two chisel plows. It features 11 16-in. wide chisel sweeps on 24-in. spacings and a manifold with a 5-in. inlet and 11 2-in. outlets. He cut the 1 1/2-ft. dia. manifold, which mounts on top of the injector unit, out of 3/8-in. thick steel. He uses 11 lengths of 2-in. dia. hose fitted with 2-in. dia. pipes mounted behind the sweeps for injectors. He covered the V-shaped openings in back of the sweeps with 1/8-in. thick steel to ensure manure gets into the ground. He pulls the rig with his Allis 8070.

For more information, contact: FARM SHOW Followup, Mike Kohnen, 1841 Janesville Ave., Pomeroy, Iowa 50575 (ph 712 468-2826).



Modified freightliner semi tractor is equipped with a high pressure pump that pumps 1,000 to 1,100 gal. of manure per minute.



Reel mounts on an old cement mixer truck and is pto-driven through the truck's mixer drive assembly. A tractor pto drives the truck's transmission.



Kohnen's 43-ft. long agitator has a 6-ft. dia., four-blade propeller and mounts on the wheels off a Gleaner A2 combine.

He Uses 5-Gal. Buckets As "Stilts"

Ordinary 5-gal. buckets make great stilts for doing overhead work," says inventor Russell Hale, Arvada, Colo., who installs special foot rests on the bottom of the buckets.

He had people chuckling and shaking their heads while demonstrating his "bucket stilts" at the recent Minnesota Inventors Congress in Redwood Falls. His invention consists of a round poly plate with a foot mold and heel rest and a pair of velcro straps to keep the foot secure. The poly foot plate is held in place by straps that hook to the open end of the bucket. All you do is velcro strap your shoes into the molds and start walking.

"Works great for painting, wallpapering, drywalling, sheetrocking, framing, cleaning, etc. It leaves both your hands free

for work and is stable even on rough surfaces. The foot mold can accommodate various foot sizes with no need for adjustment.

"I got the idea after I got hurt while trying to paint my ceiling. I had lined up six kitchen chairs in a row so that I could walk from chair to chair when I fell through one of them. Conventional stilts used by professional craftsmen sell for about \$300 and have a very narrow base so they require a lot of practice to use.

"A single bucket puts you 19 in. above the floor, and you can add more height by stacking buckets on top of each other. I've stacked up to five buckets together to put myself about 27 in. off the floor. I also made a device designed to mount under the bucket that increases height in 6 or 12-in. increments."



Hale says he's looking for a manufacturer and expects the stilts to sell for \$20 to \$25 per pair.

Contact: FARM SHOW Followup, Russell S. Hale, 5174 Bristol St., Arvada, Colo. 80002 (ph 303 467-1733).