

Centrifuge Separates Out Manure Solids

Why haul water to your fields when you can remove it before spreading manure, saving equipment expense, labor and, most importantly, fuel costs.

"My new system is ideal for farm use with rugged stainless steel construction," explains Kyte, who says his automatic system requires no operator and can be set up to handle fresh flushed manure or older lagoon sludge.

Kyte is now testing several units on dairy and hog farms and looking for more testers. The units are sized (and priced) for large operations. A TS-5000 is able to handle daily flush from eight 1,000-hog swine barns or 72,000 gal./day. Reconditioned units are priced at \$90,000 to \$105,000, while Kyte expects a new system would run as much as \$150,000. Test units are available at 15 percent over cost as Kyte seeks more on-farm experience.

The TS-5000 consists of a 120-gal. (48-in. by 30-in.) bowl, which is fed at the rate of 50 gal./min. As it revolves at 1300 G, 80 to 85 percent of solids settle to the sidewalls, while water overflows the top of the bowl and drains away. There are no gearboxes, con-

veyers or differential moving parts.

Once the bowl is filled, the feed pump is shut off. A pneumatic knife/plow cuts the approximately 30 percent dry matter cake out of the bowl to fall free through spokes in the bottom of the bowl.

"The cake can be augered into a spreader truck or storage system at that point," says Kyte. "In swine manure tests at North Carolina State University (NCSU), the manure was quite warm the next day, and I believe it would compost quickly. Water from flushed barns is clean enough to be reused for further flushing."

In the NCSU tests, the TS-5000 successfully removed 80 percent of solids and 55 to 60 percent of phosphates without any chemicals being added. If polymer coagulants are added, solid removal rate can increase to 95 to 98 percent.

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Centrifuge is designed to remove water before spreading manure. The automatic system requires no operator and can handle fresh flushed manure or older lagoon sludge.

Washer consists of a plastic tube with three nozzles and a hose coupler at one end. It uses the vortex created by the mower's rotating blades to clean the mower deck.



Easy-To-Use Mower Deck Washer

Cleaning fresh grass clippings out of a two or three-blade mower deck can be a pain. Reaching and scraping is usually the only answer. Retired engineer John Sorenson figured there had to be a better way. His Empire Riding Mower Deck Washer uses the force of the mower blades to help clean the deck.

"The rotating blades create a vortex that starts about halfway down the blades and moves up toward the deck and out," explains Sorenson. "By the time it reaches the outside, it has multiplied its force many times."

It is the vortex or spiraling movement of air that sucks lawn clippings up and out of the deck. Using various meters and gauges, Sorenson experimented for about six months and ruined about as many mower decks.

With 40 patents to his name, he understood the importance of getting it right. Simply injecting water under the deck was not enough. He noted that some deck washers have a fitting on the top of the deck for a hose, but just dumping water in doesn't work as well as getting it in at the right angle.

Sorenson found that water injected at a 45 degree angle from below is ideal. "The water hits the mower deck like a pressure washer," he says. He has patented his device, which consists of a 40 1/2-in. long, 1-in. dia. plastic tube with three nozzles and a hose coupler at one end.

"When done mowing, simply drive the mower to the washing area, raise the deck to the highest position and shut off the engine. Slide the washer connected to a garden hose under the deck," explains Sorenson. "It should slide all the way to the opposite side. The washer can handle mowers from 32 in.



To clean the deck, you connect the washer to a garden hose and slide it all the way under the deck. Then you turn on the water and also turn on the mower.

to 60 in. One fellow uses two on a 76-in. deck, pushing one in from each side."

To clean the deck, turn on the water and then turn on the mower, says Sorenson. Run blades at top speed for maximum vortex and cleaning power. "The important thing with mowers is to clean them every time, before the damp clippings can harden."

The Empire Mower Washer is made out of ABS plastic that won't warp, bend, crack or deteriorate. Suggested retail price for the washer is \$19.50. It's available direct from Empire Products as well as through independent lawn mower dealers.

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Bud Scott bought a used Ford "airplane tug" and added a 6-ft. sweepers broom on front. He also added a 6-ft. blade on back.



"Airplane Tug" Snow-Clearing Machine

"I call it my snowplow tractor," says Bud Scott, Brighton, Colo., who bought a used Ford "airplane tug" at a government surplus sale and added a 6-ft. sweepers broom on front and a 6-ft. blade on back.

"I can raise, lower and change the angle of the blade hydraulically. I can also control the broom hydraulically thanks to modifications I made to the tractor," says Scott.

The 1964 tractor was built by Ford for the military. It was built with a heated cab, lights, wiper, and rear view mirrors but no pto, hydraulics, or 3-pt. hitch. It did have a big heavy bumper on back that was used to pull planes around. Scott mounted a homemade 3-pt. hitch on the bumper and also mounted a hydraulic pump on front of the engine to provide live power.

To mount the sweepers broom, he bolted a steel frame onto both sides of the tractor. The broom, which rides on a pair of small gauge wheels, is rotated by a hydraulic motor. A hydraulic cylinder is used to raise and lower it.

He mounted a pair of 2-way hydraulic control valves on both sides of the seat. "I use the valves on one side of the seat to raise and lower the broom and to turn it on or off. I use the valves on the other side of the seat to raise and lower the blade and to change its angle.

"It works like a charm and is really comfortable to operate," says Scott. "We use it on a big, circular blacktop driveway that's 30 to 40 ft. wide. When it snows it's nice to be able to clean the driveway early in the morning in the dark in a nice, warm cab. There's room for a passenger, so sometimes I take my grand kids with me.

"Sometimes people who see me using it will stop and ask questions about it. Many of them want to know where I bought the tractor.

"I paid \$1,000 for the tractor. I bought the sweepers broom and the blade at a farm auction and I paid \$400 for the hydraulic pump."

He can use the broom and blade together or independently. "If we have just a real light snow, I leave the blade up in the air and just use the broom. If we have a real heavy snow, I leave the broom in the air and just use the blade. The broom is permanently set to angle snow toward the right. Generally I angle the blade in the same direction as the broom."

Sometimes Scott uses the broom during the summer to sweep light gravel off the asphalt driveway.

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