



German-made extruder uses a screw press to separate out solid material. Manure drops through a hole in the floor and onto the ground.

"EXTRUDER" CONVERTS MANURE INTO DRY MATTER FOR BEDDING, LIQUID FOR FLUSHING

"Closed Loop" Manure System Reduces Hauling

by C.F. Marley

With a herd of 475 milk cows, you would think Illinois dairyman Dave Timmermann has a lot of manure to spread. Surprisingly, he doesn't. Just 6 to 7 spreader loads every 3 months or so is enough to handle all the waste generated by his big herd.

How does he do it, you ask?

Timmermann has created an innovative "closed loop" manure handling system that converts manure from his lagoon into two reusable components - dry matter that he takes right back into the barn to use for bedding and liquid that he uses to flush the barn.

Timmermann is one of the first farmers in North America to employ a new electric-powered manure extractor from Germany. It squeezes the water out of manure, leaving an odorless, dry material that has the consistency of sawdust.

The extruder mounts on stilts in a small shed outside his barn. Manure is flushed from the barn into a lagoon. From there it's pumped through underground pipes up to the extruder, which uses a screw press to separate out the solid material, which drops through a hole in the floor and onto the ground. The squeezed-out water is returned through a pipe to the lagoon. Another pump in the lagoon delivers some of the water to a vertical steel tank that's used for flushing.

"It greatly reduces the amount of manure that I have to haul to my fields," says Timmermann. "The separator captures up to 80 percent of the solids and at the same time lowers its moisture content from about 80 percent down to about 50 to 55 percent. The piled-up manure is honey-combed with air pockets that allow it to dry very fast. There's very little odor and the nutrient content is reduced so the solids aren't attractive to flies, rats, or other vermin. In the summer the piles are completely dry within 24 hours; in winter it takes about two days.

"I had been using sawdust to bed my cattle, but for every truck load that I hauled in I eventually had to haul it back out. I was spending about \$100 per week on sawdust and hauling several loads of manure per week to the field. Now I haul only six or seven loads every three months or so. I also sell some by the pickup load to people who use it for mulch around their trees and to



Extruder mounts on stilts in a small shed outside Timmermann's barn. Manure is flushed from the barn into a lagoon and from there it's pumped through underground pipes up to the extruder.

keep weeds down.

"I bought the motor-powered separator direct from Germany before it became available in the U.S. I paid \$25,000 for it. I spend about \$50 per week on electricity to operate the separator and pumps, but I think it's worth it considering the time and expense saved hauling manure and the money I save on bedding. I had been using a different separator that dragged manure across screens. However, the solids that dropped through were too wet to use for bedding. The squeezing action of the screw press on this separator is the key to its success.

"I had a problem getting the German-made electric motor to run on single phase electricity. It turned out that it was a 3-phase motor that had been converted for single phase but it didn't work. I removed the motor and replaced it with a conventional 5 hp motor. If the capacitor or a bearing on the motor ever goes bad I can have it repaired locally.

"I also had a problem with moisture seeping into the motor where the driveshaft

Mini-Copter Makes U.S. Debut

If you've got high-dollar crops to protect, you might want to take a look at this new remote-control helicopter from Japan that's being introduced in the U.S.

Unveiled at the Tulare Agricultural Show, Yamaha's R-50 Mini-Copter weighs only 97 lbs. and fits easily in the back of a pickup.

It's powered by a 12 hp water-cooled Yamaha engine and is capable of speeds up to 60 mph with an average flying time of 30 minutes (fuel tank capacity is 1 gal.). It's equipped with a 6-nozzle, 8 1/2-ft. wide spray designed boom for low volume applications of pesticides or foliar fertilizers. Application is typically made from about 9 ft. above ground and range is about 50 acres. Operating cost is about \$8 per hour.

It features a computer-controlled navigation assist system that makes necessary flight adjustments automatically. In fact, the U.S. distributor says it's almost impossible to crash it. That's good because the mini-chopper sells for around \$50,000.

In addition to chemicals, the chopper is ideal for applications of beneficial insects (with the addition of a special pod), says Rick Frey, president of Arizona Biological Control (ARBICO), the Tucson, Ariz., distributor.



Yamaha's R-50 Mini-Copter weighs only 97 lbs. and fits easily in the back of a pickup. It's equipped with a 6-nozzle, 8 1/2-ft. wide spray boom for low volume applications of pesticides or foliar fertilizers.

The downward thrust of air from the 10-ft., 1-in. dia. rotor pushes insects directly to the plants, he notes. Plus, the accuracy of the chopper's flying patterns make it a perfect fit with precision farming techniques, he adds. The flight pattern can be computer controlled to apply chemicals anywhere needed.

(Applications for military and civilian purposes, such as search and rescue missions, are also being explored.)

Contact: FARM SHOW Followup, ARBICO, P.O. Box 4247, Tucson, Ariz. 85738 (ph 800 827-2847 or 520 825-9785; fax 2038).

"Corn Cracking" Silage Roller Boosts Milk Production

You can economically boost milk production with little additional effort with this silage processor from Renn Mill Center that's designed to crack corn kernels as it rolls silage.

The processor features the largest diameter rollers in the industry for the highest capacity and least horsepower requirements, according to the company's Doug Hilsabeck.

The 16-in. dia. rollers can process up to 2 tons of corn silage per minute and require only an 80 hp pto, Hilsabeck notes.

Farmers using the processor note an increase in milk production of up to 3 lbs. per day on one less pound of grain because cracking the corn and mixing it in with the silage makes it more palatable, he says.



The processor is available in four models, ranging from \$5,000 to \$15,000 (U.S.).

Contact: FARM SHOW Followup, Renn Mill Center, R.R. 4, Lacombe, Alberta, Canada TOC ISO (ph 403 784-3518; fax 2060).



Water squeezed out by separator is returned to the lagoon. There, a pump delivers some of the water to a vertical steel flush tank at end of barn.

comes out of the gearbox. I solved the problem by mounting a flanged spacer equipped with a weep hole between the gearbox and motor. A weep hole in the spacer allows the water to drain off."

The separator is now sold in the U.S. by FAN Separator (USA), Inc., 466 Randy Rd., Carol Stream, Ill. 60188 (ph 800 451-8001

or 630 871-8882; fax 630 871-8886). Company spokesman Ralph Rueckert says there are about 250 of the units operating in the U.S. They sell for about \$32,000.

For more information, contact: FARM SHOW Followup, Dave Timmermann, 111601 Germantown Road, Breese, Ill. 62230 (ph 618 526-7476).