This Fertilizer Makes its Way from Toilet to Table

BOB SHAW, St. Paul Pioneer Press

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ST. PAUL, Minn. (AP) — Guess who is fertilizing the food you eat?

You are.

Every time someone flushes a toilet in the Twin Cities, chances are the contents will end up on a farmer's field. In that way, the sewage system operated by the Metropolitan Council performs the ultimate in green alchemy -- transforming poop to payola, the St. Paul Pioneer Press reports (http://bit.ly/UjSFbq [1]).

"I don't use the word 'waste.' Nothing is a waste," said Harry Dessner, a southeastern Minnesota farmer who sells the human-based fertilizer. "We want to reuse and renew."

A new version of the fertilizer, called MinneGrow 5-4-0, just ended its first season of production at a plant in Shakopee. In Dakota County, a similar product -- a kind of processed human manure -- is growing more popular.

"We are very proud of what we do," said Carl Swaggert, who manages the MinneGrow plant. "It's a great story about recycling something that used to be a detriment, and it is now a positive."

Usually, solid fecal matter has been seen as worse than worthless -- stinky, dangerous, packed with deadly germs. It's the last thing anyone would pay for. But a transformation begins when the material flows into the Blue Lake sewage treatment plant in Shakopee.

On a recent tour, Met Council spokesman Tim O'Donnell said about 26 million gallons flow into it every day, enough to fill about 40 Olympic-sized swimming pools.

The sewage is put into huge tanks, where bacteria feast on it. Then it is dried. The material goes to a building alongside the plant, operated by the New England Fertilizer Company (NEFCO), which manages four sewage-to-fertilizer plants in other states.

Swaggert, NEFCO's plant manager, walked into the drying room of the MinneGrow plant, where a furnace heats the material to 1,500 degrees Fahrenheit. He pointed out the smokestack scrubbers that eliminate the mercaptans, the sulphur-containing compounds that give poop its uniquely bad smell.

"When it leaves here, it hardly has a smell at all," Swaggert said.

Last year, said Swaggert, a new environmental trick was put in place at the plant.

Flammable methane is captured early in the treatment process and used to dry the material later. Recycling the methane cuts natural gas use by 75 percent, saving about $500,000 a year.

The plant also got new tanks -- called "digesters" -- that allow bacteria to break down the sewage more completely, said Swaggert. He said MinneGrow is now a better fertilizer, plus it's less dusty and easier to apply.

And it's germ-free. At the end of a 10-foot-wide drying bin, Swaggert plunged one hand into a box of MinneGrow pellets, which sifted through his fingers like sand. The bacteria, which make up about 30 percent of the solid material in human waste, were dead.

Swaggert climbed up to a catwalk to watch as 40,000 pounds of MinneGrow spilled into a semitrailer, bound for farmers in southern Minnesota. One of them is Dessner of Kasson, Minn., co-owner of Sustainable Fertilizer Solutions, a distributor of MinneGrow.

Dessner said MinneGrow is cheaper than other fertilizers, partly because transportation costs are slashed when the fertilizer is produced locally.

Farmers who routinely work with cow and turkey manure are learning to work with a product from toilets. "I joke and I say this might be cleaner than your bathroom," Dessner said.

Right now, Dessner is facing one problem -- lack of supply. "We need more of the product. We would like to see this expand."

The fertilizer produced at the Met Council's Empire Plant in southern Dakota County is different.

It's not as highly processed and resembles moist soil. The plant has been producing it for 15 years, giving it away to a cluster of nearby farmers. From 2002 to 2012, output was increased by 60 percent to about 9 tons per day.

"It's a well-kept secret, but people who want it are getting it," said Bill Cook, who manages engineering at all seven Met Council sewage plants.

Cook said that "99.9 percent" of the bacteria are dead -- but it's not 100 percent germ-free like MinneGrow.

Jon Nielsen can see the Empire plant from the 200 acres he farms. He applies the fertilizer in the spring with an "industrial manure spreader," he said.

"I would say it's a little like putting on cow manure, only it's a little more earth-like," he said.

And the smell? "It smells a little soapy, a little bit like detergent," Nielsen said.

Human-based fertilizer is sold in gardening centers on the East Coast under the brand name OCEANGRO; and in many areas as Milorganite, produced by the Milwaukee Metropolitan Sewerage District.

There are no plans to distribute MinneGrow on the retail market, said plant manager Swaggert.

But there is no shortage of demand by farmers, said Dessner, so he is confident the use of human-based fertilizer will continue to expand to farms in other areas.

If it works well in southern Minnesota, he said, "where else would it be good?"

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