

Report on Business

COMMENTARY

Patrick Brethour

The (not so sweet) smell of success

Turning human waste into fertilizer



Patrick Brethour

Thursday, Apr. 09, 2009 10:28AM EDT

But does it smell?

By now, Phillip Abrary is resigned to that nose-wrinkling question when people first find out what his company does, namely turn the liquid goo from sewage treatment plants into a valuable - and soon to be scarce - phosphorous fertilizer. The first, and understandable, reaction is that the product made by Ostara Nutrient Recovery Technologies Inc. must carry some sort of lingering stink. "You tell people, this came from poop, there's always a natural inclination to think so," he says.

In reality, the only odour emanating from Vancouver-based Ostara's high-grade fertilizer is the smell of money. Phosphorous is a key component in fertilizer and, as such, a pillar that props up global agricultural output. However, as my colleague Mark Hume described earlier this week, traditional mined phosphorous production is headed toward a cliff: Output may peak as early as 2035, and would plummet after that. Already, China (one of just three producers) has put enormous export tariffs on its phosphate production in order to make sure its supplies stay in the country.

Think peak oil theory - except that instead of running out of gasoline, the world would run short of food. Modern agriculture depends on abundant supplies of fertilizer. Luckily enough, there is another, as yet untapped, source of phosphorous: Human waste.

Ostara's technology, spun off from research at the University of British Columbia, takes aim at that (admittedly icky) resource by extracting ammonia and phosphate from effluent and creating tiny granules made up of as much as 90 per cent phosphorous. Those granules are then mixed with other chemicals, and the result is a slow-release fertilizer, ideal for use in greenhouses, strawberry fields and any other kind of agriculture that needs to minimize the amount of runoff.

The chemistry is sound enough, and the demand picture - at least in the long term - is rosy. The short-term challenge, however, is in securing sources of supply, so to speak. Mr. Abrary and his company have to first overcome the baked-in conservative impulses of the people who run sewage treatment plants. Needless to say, sewage plants have not historically been a bastion of technological innovation.

So, Ostara's search for a beachhead market could have been hindered, perhaps hobbled, by the unwillingness on the part of municipal technicians to risk messing with the steady flow of sewage. But Ostara had the good luck to be pitching its technology to the city of Portland. Not only is the Oregon city embedded in the eco-friendly mentality of the West Coast, its sewage plant faces unusually stringent restrictions on the discharge of nutrients - a delightfully sterile euphemism for wastewater that can pollute rivers and other waterways.

Those tough rules are a market opportunity for Ostara; its technology extracts the nutrients, reduces the processing costs for the plant and produces phosphorous. The company and the plant divvy up the resulting revenue, although Mr. Abrary declines to specify what the precise split is. Once the extraction effort is running at full tilt, it will produce 500 tonnes of phosphorous granules a year.

That might sound impressive, but it's really just a drop in the wastewater stream. There are truly huge market opportunities in coming decades. The United States corn belt is a big one, particularly if the ethanol industry continues to consume that crop. Even bigger is China, where there is an intersection of demand - all those rice paddies - and, of course, a large source of supply.

Ostara has no immediate overseas ambitions, although Mr. Abrary says he has already had a number of meetings with Chinese officials and companies. His concern is to avoid financial overreach. The company had the good luck to secure \$10.5-million (U.S.) in venture financing just before capital and debt markets snapped shut last fall.

The caution may be justified, but Mr. Abrary may want to think about accelerating his plans - already, Japan's Ministry of Land, Infrastructure, Transport and Tourism is looking at handing out subsidies to spur development of similar technology in that country.

For now, Mr. Abrary is looking forward to the first sign of his beachhead strategy paying off. Some time in the next two weeks, the first truckload of phosphorous rumbles out of the Portland treatment plant. That's nothing to sniff at.

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ON Canada M5V 2S9
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