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Wastewater project in Durham turning out environmentally friendly fertilizer

By Jill Rehkopf Smith, The Oregonian

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Six months after **Clean Water Services** began using Canadian technology to remove certain nutrients from wastewater, the partnership is selling small quantities of environmentally friendly fertilizer, with more plants scheduled to open and international interest.

In addition, the sewerage agency recently patented a process that removes phosphorus and magnesium from wastewater, which could lead to more environmental and financial benefits.

In mid-May, the sewerage agency's Durham treatment plant joined with **Ostara Nutrient Recovery Technologies** in British Columbia to remove phosphorus and ammonia from wastewater and turn it into **Crystal Green**, a slow-release fertilizer.

Ostara backers hope the result will be cleaner sewage plants and "greener" fertilizer across the country.

With about 100 tons of Crystal Green produced so far, the Durham plant -- the first in the U.S. to use Ostara's technology -- manufactures far less than the 100,000 tons a year big fertilizer companies produce, said Ostara president Phillip Abrary.

The Crystal Green supply will increase, however, when two plants open soon on the East Coast, using equipment made in Oregon, Abrary said. Clean Water Services also is considering adding Ostara's technology to its Rock Creek plant.

Right now, customers are buying small amounts for trial runs, Abrary said. Oregon State University and a golf course are among local users.

Ostara also shipped three tons of Crystal Green to Spain and 11 tons to British Columbia. Inquiries have come from Singapore and Australia. An article in the November issue of **Scientific American** increased the attention.

"The interest is far and wide," Abrary said.

The biggest challenge has been developing four pellet sizes of the fertilizer, he said. Golf courses and some vegetables, such as lettuce, need fine pellets. Nutrient-poor rivers are best nourished by large pellets.

Clean Water Services has received about \$45,000 from Ostara for the fertilizer and expects that to grow to more than \$300,000 annually when production is in full swing.

Rob Baur, senior operations analyst for the sewerage agency, said preliminary data show the process also may have saved the plant \$100,000 in operating costs. It reduced bio-solid waste by 260 tons (12 percent), resulting in lower shipping costs. It reduced the use (and cost) of chemical methods for removing phosphorus by 23 percent.

Baur developed the newly patented process that removes phosphorus and magnesium, another fertilizer ingredient.

Ostara buys magnesium to add to Crystal Green, but Baur's technology could provide magnesium to supplement that supply. It also could reduce the buildup of struvite, a concrete-like material that plugs up many treatment systems.

Baur is getting ready to run a pilot test this fall and is already looking into licensing the technology for commercial use.

-- Jill Rehkopf Smith