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## Clean Water Services to extract nutrients from waste for fertilizer

**By Don Renfroe, The Oregonian**

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It isn't often that sewage saves money, much less makes any.

But Clean Water Services is installing a system at its Durham treatment facility that can extract phosphorus and ammonia from wastewater. The nutrients will be converted into fertilizer, sold to the company that developed the system and then resold to local farmers, nursery owners and others.

Currently, Clean Water pays to remove and dispose of the nutrients, which tend to stick to the utility's machines. Officials say the \$2.5 million system, which will be up and running by spring, will be able to produce 40 tons of fertilizer a month and pay for itself in five years.

After that, the technology developed by Ostara Nutrient Recovery Technologies should shave about \$500,000 off the \$44 million the utility spends annually on operating costs, said Mark Poling, wastewater treatment department director.

Ratepayers probably won't see lower service costs, though.

"It's an overall financial impact on the district, but the impact wouldn't be that large," Poling said.

Rob Baur, an operations analyst with Clean Water, has found a way to extract magnesium, which is also used in the fertilizer that Vancouver, B.C.-based Ostara calls Crystal Green.

"We've been on the leading edge of nutrient removal," said Baur, who is patenting the magnesium process.

Washington County officials will meet with Ostara officials in mid-December to discuss the possibility of Ostara licensing Baur's enhanced process.

Ostara is focusing on selling Crystal Green to Oregon-based fertilizer supply companies, such as Marion Ag Service, located north of Salem, said Phillip Abrary, Ostara's president, chief executive and director. The companies will mix it with other fertilizers and sell to farmers and nurseries.

The heavy phosphorus base should sell well in Oregon's container crop market, the largest nursery industry in the state, said David Hicks, a horticultural specialist with Marion Ag Service. He said worldwide demand is high for phosphorous, which helps plants such as ornamental trees grow stronger and fuller.

Clean Water became Ostara's first U.S. customer, Abrary said, after using a trial system for about a year.

The privately held company, which formed in 2005, has a system in operation in Edmonton, Alberta, and is working to install three others along the East Coast.

Ostara licenses its patent to a company by selling a reactor -- a large vessel shaped like an upside-down rocket ship -- used to extract the nutrients.

When sewage comes in to treatment facilities, it becomes sludge. Water is drained from the sludge and sent through Ostara's reactor, which extracts the nutrients.

The slow-release fertilizer won't contaminate runoff water, Abrary said.

Washington County voters formed Clean Water Services in 1970 to clean up the Tualatin River.

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