

<http://www.vancouversun.com/technology/Urban+Stream+composter+captures+circle+life+shipping+container/8001360/story.html>

Urban Stream composteur captures circle of life in a shipping container

Self-contained system is small enough to fit in a single parking space

BY RANDY SHORE, VANCOUVER SUN FEBRUARY 22, 2013



Nick Hermes is the founder of green-tech startup Urban Stream Innovation that has created a way to eliminate organic waste.

Photograph by: Mark Van Manen, PNG Staff, Vancouver Sun

Urban Stream Innovation, a Vancouver-based sustainable tech firm, has installed its first self-contained prototype composteur and vertical growing system designed to eliminate kitchen waste and produce restaurant-quality herbs and greens.

The staff at Luke's Corner Bar & Kitchen will donate about 45 kilograms of vegetable waste, old coffee grounds and used tea bags each day to the micro-farm's two-stage composteur housed in a shipping container, parked behind the Granville Street eatery.

What they get back - two-and-half kilos of herbs and arugula a day - will be served to their

45kg/day = about 1 Ton/month; cost savings stated below of \$600-\$200=\$400/month seems excessive

customers in salads, sauces and entrées.

Luke's will buy the produce for market value.

"When you taste the freshness of a product from right out the back door, there's no comparison (to store-bought)," said Luke's owner Mark Roberts.

The real value of the system from a business standpoint is that it diverts waste that businesses have to pay to haul away.

Luke's was spending up to \$600 a month on garbage pickup, said Roberts. "We are down to \$200 a month now and we expect to get to zero."

Operating the micro-farm will take about one hour of staff time per day, according to Urban Stream Innovation's founder Nick Hermes. The prototype has enough composting capacity that Urban Stream will be able to take on a second restaurant's waste.

Food waste will be banned from Metro Vancouver's landfills by 2015, leaving thousands of restaurants with a potentially expensive disposal problem.

Urban Stream Innovation wants to be a part of the solution, according to company founder Nick Hermes.

Purchasing a fully outfitted composting micro-farm would cost about \$15,000 plus staff training costs, but the company expects most restaurants will lease the units for a fee based on their waste disposal costs and have it serviced by Urban Stream staff.

The system is designed to effectively eliminate organic material from the waste stream.

Material first enters a bioreactor - simply a composter that speeds and regulates decay using forced aeration and temperature control to encourage microbial action - extracting heat in the process. The composted waste then enters a slightly lower-tech vermicul-ture phase in which it is consumed by about 15,000 worms, said Hermes.

Once the waste has passed through the digestive system of the worms, the castings are used to create a soil-like medium for starting seeds and a nutrient solution for more mature plants to grow on.

Plants are grown in an array of trays made from home-grade rain gutters. The top of the container has been replaced with greenhouse-style material to allow light in. In the winter, supplementary electric light is needed, but all the heat required to grow greens year-round is supplied by the bioreactor.

"Fully off-the-grid systems will come later," Hermes said. "That's the dream, but we're working on one system at a time."

Surplus finished compost will be used to grow oyster mushrooms in a darker corner of the container, with the rest destined for Luke's on-site garden.

The shipping container fits into a standard parking stall, said Hermes, a graduate of the University of B.C.'s department of chemical and biological engineering

The idea for the system is a spinoff from Hermes' thesis paper on waste-to-resource recycling, from which he extrapolated applications for sustainable food production.

While much of the project employs existing technologies Hermes won a \$25,000 federal research grant to develop a proprietary Heat and Nutrient Recovery bioreactor.

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Economics:

Plus: Net Value of growing own vegetables (unknown); saving in garbage costs (\$400/month)

Minus: Cost of 1 parking spot (\$300/month); micro-farm (\$15,000 --> \$150/month+staff time/training); utilities unknown; internal space costs unknown;

CBA: Dubious business case