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# Virginia Man Creates Elaborate System To Reduce Food Waste

By: Sabri Ben-Achour

[Transcript](#)

January 18, 2013 [programs/metro\\_connection/13/01/17/virginia\\_man\\_creates\\_elaborate\\_system\\_to\\_reduce\\_food\\_waste\\_transcript](#)

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Sabri Ben-Achour

This aquaponics system uses fish waste to feed plants, and plants and bacteria to filter water for fish.

Walk into Joel Thevoz's Main Event Catering operation in Arlington and you'll see a sleek test kitchen with brushed steel stoves, a wine tasting area, and maybe a bridal consultation here or there. And then, in the back warehouse rising up to the rafters, a garden.

"It's a garden inside our warehouse," Thevoz proudly explains. "We're an old industrial section of town, and we have a garden with living fish."

It's much more than a garden. It looks like a massive two-story bunk bed with four levels. On the upper levels, broad-leaved squash vines spill out the side and curl around the metal posts holding the thing up. On the bottom bunk are chest high tubs full of auburn colored water.

"We have a series of fish tanks in which we house tilapia," he says. "We have at least 500 full-size fish in the range of 2 to 3 pounds."

He throws in a few handfuls of fish food pellets, which are quickly devoured by ghostly white fish that dart up from the bottom. This garden grows fish using plants, and grows plants using fish. It's called aquaponics — a combo of aqua culture and hydroponics.

### Like crack for plants

"What happens is the fish excrete their waste, and it's an ammonia rich waste," Thevoz explains. "The fish would not be able to survive in their own wastewater."

So the wastewater is pumped up to the rafters to a big tank full of bacteria.

"These naturally occurring bacteria convert the ammonia into nitrate and that's the base element of fertilizer," he says, as he points to the drains that take the processed fertilizer water down to the bunks full of plants.

"It's like crack for plants. They absolutely love it, and that's how you get these beautiful greens with absolutely no soil."

He climbs 12 feet up a ladder and points to the second level, where a green carpet of seedlings is lit by LED lights. He has arugula, chia seeds, amaranth and buckwheat, as well as lettuce and tomatoes (though no fruit yet).

"One of the beautiful things about a system like this," says Thevoz, "is in a recirculating system there's almost no waste. Everything — all the inputs that we have, can be controlled, minimized."

Thevoz's goal is to scale this up and one day have aquaponic greenhouses on the roof. He wants to replace the fish pellets with soldier fly larvae from his compost bins, if he can get approval from the local health department. That way he can use all the waste that he composts from his catering business — leftovers and cardboard boxes and packing material — to be part of the aquaponic system, too. For now though, he only harvests microgreens.

He's also looking for researchers or grad students to use his facility for research.

**People thought I was nuts**

"I got to tell you that first when I was putting this together, people thought I was nuts," he remembers with a certain pride. "My employees, my friends... thought I was completely out of my gourd. But I got to say I proved them wrong, the system is fully functional, it works."

It works, but it isn't economical for Thevoz at the moment. It'd be cheaper to just buy tilapia. Steven Newman, a Greenhouse Crops Extension Specialist at Colorado State University, is skeptical of aquaponics' ability to compete in the general market.

"If you're marketing to the person that's going to go to the large grocery store, you're not going to meet that market demand," he says.

In niche markets though, he sees potential. "You need to focus on a higher end market that's willing to pay the price for locally produced food. Not everyone can afford that."

And in the Washington, D.C. region especially, where runoff to the Chesapeake Bay is a serious concern, he says it could be attractive.

**A question of resources**

Another way to get this type of system to become economical is to get really good at it.

"It's very doable, it can be very economical," says Don Bailey, a research specialist at the University of the Virgin Islands Agricultural Experiment Station. "He's trained hundreds of people on how to set up aquaponic systems around the world and says he hears back from many people who are doing well."

One of the big reasons why urban agriculture is a difficult proposition is that land and water in the city are expensive compared to their cost in, say, rural Mississippi, where catfish are farmed by the acre. That's exactly why Bailey thinks aquaponics is a good idea.

"The reason we do it in the Virgin Islands is because our land is very expensive and agricultural land is hard to come by," he says.

Farmers have to find a way to farm intensively, and get the maximum output from a small space. Hence fish farms and plant farms.

Thevoz, for now, says he isn't really worried about the money making angle. It's really more of an experiment.

"We want to create an efficient vertical farm," he says. "Right now, we're just trying to mitigate our waste."

And on that goal, at least, he's succeeding.

*[Music: "Loop" by Underworld from Back to Mine]*

**Photos: Food Waste**



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