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This backyard harvest has gills and fins

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When Atlanta gardeners pick their pumpkins and gourds next month by hand, landscaper Brian Barth will harvest his bounty by net.

Barth has raised more than 100 tilapia and a dozen catfish in a 1,200-gallon tank in a Decatur backyard, his first adventure in aquaculture.

Unlike vegetables, there's no weeding or watering. Unlike chickens, there's no clucking or running away. The tank's churning water soothes by sound and promise. Barth knows exactly where his protein will come from.

"I really think this is the next thing in urban food farming," said Barth, 31, whose Tree of Life Ecological Services installs edible landscapes. "I can see this in basements or office buildings. Restaurants have always had fish in huge tanks. It will be tank to table."

While rural Georgians have long fished for their supper in backyard ponds, the idea of raising fish to eat is catching on in urban areas including Atlanta -- especially among "locavores" who want food raised nearby, without harmful chemicals or harming the earth.

In Cabbagetown, Dr. David Epstein, 50, has built a series of water troughs and tables for tilapia, red-clawed crayfish and shrimp.

"Do you want your shrimp from the Gulf or raised in a sewer?" he asked, alluding to the risk of spilled oil in ocean breeding grounds for shrimp and the crowded conditions of commercial beds. "Think about the cost of raising those and bringing it to your table. And this is so much more fun."

In his setup, the fish do double duty: Their waste fertilizes herbs that grow from the water surface, and the plants and their gravel help filter, purify and take up extra nitrogen. Raising fish and vegetables together is called aquaponics.

Epstein believes that aquaculture and aquaponics -- in small, efficient networks -- will be critical to restoring food supply to people after natural catastrophes, "where you have to get food systems up and developing fast." They can be set up on vacant land, even parking lots -- arable soil is not necessary.

"We are all charting new waters," said Epstein, who with engineer Ken Lovell founded Algosolar Systems to design self-contained food systems. "Anyone doing it now has an opportunity to be a real pioneer. How close can we get to nature? How off the grid? Once you start to see the potential, you get obsessed with it."

Despite no advertising, more people are attending the bimonthly workshops on backyard fish farming at the state-funded Georgia Center for Aquaculture Development, located in three greenhouses at Fort Valley State University.

Organic food organizations, community supported agriculture (CSA) groups and word-of-mouth have helped boost attendance to more than 40 people per session.

“Koi carp, bluegill and bream can be raised very easily this way, and same with marine shrimp,” center director Dr. Pat Duncan said. “No matter how you look at it, fish is low fat and high protein. The beauty of aquaponics is that you can get excited about eating vegetables raised in the same system as the fish.”

One way Georgia boosted backyard aquaculture, Duncan said, is by simplifying the Department of Natural Resources permit process for raising tilapia and non-native species. Permits protect state waterways from invasive species.

This is just the latest ripple in backyard fishing, which was promoted locally after World War II.

“There was an effort to get nutrition into rural parts of Georgia, Alabama and Florida by encouraging farm ponds,” said Gary J. Burtle, an extension agent in middle Georgia who handles aquaculture inquiries. “There are probably 70,000 to 100,000 farm ponds in Georgia. They play a significant role in the natural resources of the state.”

Imagine today’s small farmer whose land produces organic vegetables to “community supported agriculture” subscribers. The same farmer might farm his pond for native fish.

(The farmer isn’t allowed to raise “exotic” species like tilapia without a separate system, such as Barth’s. “I wish we could put cages in ponds,” Duncan said. “There are so many farm ponds where it’s so easy to raise a fish [like tilapia] that can be sold for some extra cash.”)

“That’s where I’m getting the interest in doing this backyard aquaculture,” Burtle said. “It’s a spinoff. They’re already doing gardening and want another product that they can make a little money at. If it’s community supported, they get help buying tanks and pumps and feed.”

Earlier this year, Barth used a guidebook to build his RAS -- recirculating aquaculture system, similar to a koi pond -- for about $1,500. “There were a lot of little doohickeys,” he explained.

In early June, Barth stocked it with 100 two-inch tilapia fingerlings ordered by mail from South Carolina and 15 catfish from South Georgia. To ward off shock and disease, he bathed them in saltwater before putting them in the tank, a process also used in commercial fisheries.

Barth has been in a race against the calendar, because once temperatures dip below 70 degrees, tilapia stop growing. Each must be at least a pound to make the harvest worth the effort.

Barth knew his tilapia would be smaller because he allowed female fish in the population. Commercial tilapia farmers raise only males, who grow faster without females around. Barth plans to over-winter the females indoors in preparation for his 2011 season.

At first, three of the catfish died of unknown causes and overfeeding turned the water murky.

Finding the right type and level of feed was a challenge. Barth settled on Purina catfish chow, despite its additives, because a) organic catfish food was too expensive, and b) the nutrition would help his fish would grow enough before cold weather set in.

“It’s kind of like with dog food; now there’s a full spectrum of quality that wasn’t there before,” Barth said. “But [organic feed] has not been innovated for the backyard fish grower to the degree of dog food.”

Barth thinks the dark water may affect the dining experience, because “from what little I know, the cleaner the water the better the taste.”

The dark water meant he couldn’t see the fish, but at least no more floated to the top. They swish when he tosses in food pellets, and glimpses prove they are growing. “A work in progress,” he calls it.

The son of an organic gardener, Barth, 31, had no interest in soil or water when he graduated from Chamblee High School in 1997. While at the University of California-Santa Cruz, he traveled in the Andes among subsistence farmers.

“The most revolutionary thing to do is to provide for your own basic needs,” Barth said. “My interest grew to buck the system and I discovered I was cuckoo for plants.”

After building a successful landscaping business in Santa Cruz, he moved back to Georgia a year ago to buy land.

At the nearby farmer’s market, Barth spends $5 per pound for tilapia. His might be one pound each, so one season won’t recoup his aquaculture investment. The knowledge he gained will carry over to his edible landscaping business, and his belly.

“Fish tacos are my favorite,” he said. “I love tilapia.”

Tank to Table Timeline

To set up his backyard tilapia farm, Brian Barth relied on the guidebook, “Small Scale Aquaculture: A hobbyist’s guide to growing fish in greenhouses, recirculating systems, cages and flowing water,” by Steven D. Van Gorder (Alternative Aquaculture Association). Month by month, here are his steps:

April: Condition the water. Get the biological activity of the system ready to support fish.

May: Stock the fish when temperatures are above 70 degrees.

June-Aug.: Weigh them, feed them by weight and as they grow, feed them progressively more. Monitor the water quality.

Sept.-Oct.: Harvest before the temperature cools to below 70 degrees. Consider artificially heating the water if the fish are not big enough. Below one pound is not worthwhile to harvest.