

Growth Model

A Boulder woman brings high-tech gardening to the DIY-inclined.

SYLVIA BERNSTEIN GROWS SOMETHING

unusual next to the vegetables in her greenhouse: tilapia. Do they make good pets? Not really. But they're not supposed to. Bernstein uses the fish for a new gardening technique called aquaponics, which combines aquaculture (raising fish) and hydroponics (a method of growing plants without soil) into one self-sustaining system. The idea: Water full of fish waste can be recycled into plant beds and used as fertilizer. Then, excess water is repurposed back into the fish tank in one continuous loop.

When Bernstein first heard of aquaponics, she was skeptical. At the time, she worked for AeroGrow International, a company that produced tabletop hydroponic gardens—but this concept seemed like a stretch. "I really didn't believe that fish waste was enough to fertilize a garden," Bernstein says. Then one of her colleagues built a successful system in his basement. Intrigued, she tried the gardening method

HOW IT WORKS

THE AQUAPONICS SYSTEM IN ACTION*

1. Fish eat fish food.
2. Fish produce waste.
3. Water containing fish waste is pumped from the fish tank into the grow bed.
4. Microbes and worms in the soil convert fish waste into fertilizer.
5. Plants absorb water and fertilizer.
6. Plants filter excess water, which is returned to the fish tank via an auto-siphon that triggers when water levels in the grow bed reach a certain height.

on the deck of her Boulder home. Not only did it work, but it was also more water efficient and yielded significantly more produce than a regular garden.

Pleased with the results, Bernstein converted her greenhouse to aquaponics and decided to make a career out of teaching others to do the same. "Aquaponics just resonated with me because it was truly organic and sustainable," Bernstein says. She left her job with AeroGrow, and along with her husband founded the **Aquaponic Source, Inc.**, in fall 2009. Aquaponic sells the grow beds, pumps, fish tanks, and, more recently, the actual fish required to operate an aquaponic garden. The method has caught on: Some people, Bernstein says, are drawn to the impressive bounty of herbs and vegetables; others appreciate the water efficiency and space-saving benefits. "Once gardeners understand how it works," she says, "they're hooked." theaquaponicsource.com —JAYME MOYE

*Multiple aquaponic systems pictured below.



LOCALLY PRODUCED

Residents of the Elyria-Swansea neighborhood north of I-70 near York Street are miles away from the nearest grocery store, which is on the other side of U.S. 270 in Commerce City. It's a logistical problem that prompted Denver natives Adam Brock and Coby Gould to take action. In fall 2009, the pair helped start a nonprofit urban farm called **Growhaus** inside a tattered gray building in the area to provide fresh fruits and vegetables to the neighborhood.

Growhaus has flourished since its inception. The nonprofit started by producing lettuce, which is sold locally and distributed to organic grocers, and is in the process of expanding the greenhouse to include strawberries, tomatoes, peppers, and herbs. The indoor farm also doubles as an education center, where Brock teaches classes on the benefits of a healthy diet and the basics of aquaponics and permaculture farming. "Some people don't have a choice when it comes to what they eat," Brock says. "They know certain food is bad, but they don't have money, time, or choices." —LINDSEY R. MCKISSICK

