



A Bloomington inventor hopes to help people grow their own food

STORY BY SHAWNDR A MILLER
PHOTOS BY JOSH MARSHALL

It took the combined wisdom of a retired professional athlete and an Amish man to lead Bloomington's Colin Cudmore to recognize a startling gap in the nation's food system — and to invent an innovative solution, called the Garden Tower Project, to fill it.

Former pro basketball player Will Allen, the Milwaukee-based founder of the non-profit Growing Power, made an IU-Bloomington appearance to speak on the inequity surrounding food access. Food deserts in predominantly poor neighborhoods, he explained, leave many lower income and minority people unable to buy produce. Food deserts are defined as geographic areas where affordable and nutritious food is hard to obtain, particularly for residents without transportation.

Cudmore says he realized that “people in poor urban areas all across this country and all across the world often lack access to organic food, or even fresh food for that matter. A lot of people are eating out of convenience stores.”

With a creative bent to his personality and a couple patents under his belt, it was natural for Cudmore to start considering ways to address the problem. His commitment would be solidified at a farmers market where he volunteered.

There he had another epiphany. He noticed that an Amish vendor's starter plants were not selling, though the produce itself was. In speaking with the grower, he learned that the customers typically declared they didn't have the time or know-how to grow produce.

That turned the wheels even more, and Cudmore began researching possibilities. He pored over YouTube videos, searching for success stories. What solutions were already working in the movement to empower people to grow their own food? “I didn't have any gardening experience at the time,” he says. “And that process took probably weeks if not months, just putting the idea in my head and writing down a list of criteria.” He schemed a “patio farm” design around several requirements: the product had to be lightweight, easy to ship, accessible and simple to prototype.

The idea of a vertical garden in a barrel began to take

shape. The design would enable users to grow 45 plants in pockets, with potential for another five plants up top. Like a large strawberry planter, it could produce a great deal of food in a small amount of space.

But what would really set Cudmore's invention apart was the addition of an enclosed worm farm.

“The eureka moment was the centrally located composter, the vermicomposter,” he says. This plastic tube is perforated with dozens of holes. With the addition of a handful of red wigglers and vegetable scraps from the gardener's own kitchen, the tower would become an elegantly self-fertilizing system.

In tweaking the prototype for the Garden Tower Project, Cudmore benefited from the expertise of co-founder Joel Grant, an environmental scientist and expert in natural systems. They soon brought in a third partner, Tom Tlusty, whose health professional experience helped them reach a wide audience.

Two years later, 1,500 Garden Towers are in use nationwide. Users with a range of experience levels — from novices to master gardeners — report that yields are surpassing all expectation.

Bloomington resident Patti Cummings says she has gardened for years, though “not necessarily successfully,” and when she started her Garden Tower last spring she was amazed at the result. “The foliage was just beautiful,” she says. “I had some things turn out successfully that I've never had luck with.”

Deer are a big problem where she lives, and the deer left her Garden Tower plantings alone. “I was actually able to raise cabbage and not have something come along and eat it,” she says.

Cummings loves the small footprint of the tower, which only takes up 4 square feet, and she has purchased additional ones for other members of her family. While patio farming may not be for the gardener who wants to preserve large quantities of homegrown produce, she says it's great for teaching children about growing things and increasing self-sufficiency. “If you've got one sunny corner, you can at least keep yourself in salad.”

The Garden Tower holds special appeal for people who might not otherwise have the ability to garden, such as elderly folks and people with disabilities. Unlike traditional gardening, there's no soil preparation after the initial filling of the barrel. “You don't have to go out there with a shovel and hoe,” says Cudmore. “You don't have to do any weeding. And you can garden from a chair.”

Cummings agrees. “It's convenient — there's not as much bending and stooping,” she explains. In fact, she recently suggested the Garden Tower to a friend whose daughter is in a wheelchair and has expressed interest in gardening.

Several Garden Tower users are in their 90s, including Cudmore's own mother-in-law. “As people cycle from traditional gardening into their elderly years, and they're unable to garden anymore, this is a simple solution,” he says.

The barrels are made of recyclable food-grade plastic, and the latest version, which is terra cotta colored, uses an FDA-certified dye.

Currently the plastic used to make the Garden Tower body is high-density polyethylene. This type of plastic is BPA-free and provides at least 10 years of resistance to UV radiation before the shell integrity begins to decline.

While the petroleum-based material adds to the product's environmental footprint, there may be a change on the horizon. According to Grant, polyethylene is one of the simplest hydrocarbons and can easily be produced from bio-sources. So the potential is there to make a petroleum-free Garden Tower.

Cudmore brings up another point to consider when weighing the product's impact: food miles. Fruits and vegetables can come from as far away as South America and New Zealand. “Imagine all the oil necessary to get that fruit to market, starting with the fertilizer, which in most cases is petroleum-based,” he explains. Fossil fuel energy is involved in the manufacture and running of ships and trucks transporting the produce, and also in supermarket lighting, heating/cooling and refrigeration.

“If you look at the actual input of this,” he says, “we have designed this product to last a lifetime.”

Currently a manufacturer in Illinois supplies the drums. Then Cudmore, Grant and Tlusty (and a small army of behind-the-scenes craftspeople) turn the barrels into Garden Towers. All but 1 percent of the components are American-made and -sourced. Midwestern oak is hand milled for the legs, for example.

The three partners see the Garden Tower Project as a potential game changer in the quest to build more resilient and food-secure communities. That's not only because the self-composting design transforms kitchen waste into fast-growing food, allowing families to enjoy homegrown produce with minimal effort. It's also about water conservation.

The plastic covering the bulk of the soil keeps evaporation to a minimum, and given the number of communities where water scarcity is becoming the norm, this is a huge benefit. Irrigating 50 plants in an enclosed barrel is

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BELOW: Colin Cudmore uses a router to hand make each Garden Tower.
RIGHT: The staff at the Garden Tower Project. **OPPOSITE PAGE:** The inside view of a Garden Tower.



» For more information, visit gardentowerproject.com.

quite different from irrigating the same plants in a traditional garden plot.

To illustrate this, Cudmore tells the story of a customer attempting to garden in Arizona's high desert. "They've tried every form of in-ground gardening imaginable," he says. "They were using 50 gallons of water to service 50 plants, and it was just so hot, it was evaporating from the soil and the air."

No matter what the Arizonan gardener tried — permaculture practices, hugelkultur (planting in woody mounds) — it took a gallon a day, per plant, to keep the garden productive.

After purchasing the Garden Tower, this gardener saw a dramatic decrease in water needs. A garden that would have demanded 50 gallons of water per day now required a mere 5 gallons a day.

Watering plants in a large container has another advantage: The excess water can be caught from the drain at the bottom and recycled back through the system. Over the course of a growing season, the captured liquid becomes a nutrient-rich medium itself: "It's filtering through a soil system," explains Cudmore, "that has worms continually passing through it that are digesting

the food in the central column, and they're basically pooing as they travel through it and creating fertilizer."

Water scarcity isn't the only barrier to the kind of distributed agriculture that the Garden Tower Project's partners envision. Worldwide, the potential for farming is limited by high levels of toxins in the soil.

Thlusty points to China's estimated 8 million to 13 million acres of toxic land. Closer to home, "we've got problems in Pennsylvania and all over the country, in different places, where (due to) land toxicity, you don't know what's in the soil," he says. "So that's another place where the Garden Tower is really strong because we can control the inputs."

Though they are kept busy handcrafting the barrels to fill orders, the partners are working to bring schools and other institutions to vertical gardening. A HUD community group in California placed Garden Towers with low-income homeowners. Meanwhile several local schools are using the towers in science classes, while a professor at Clemson University in South Carolina is developing curriculum materials. "We've had great preliminary feedback from educators," says Thlusty.

Because of her positive experience introducing patio farming to her 5-year-old granddaughter, Cummings purchased towers to donate to a middle school and two Boys & Girls Club affiliates. The Garden Tower Project matched her gifts with an elementary school placement.

"So many people don't have any idea where their food comes from other than Kroger," she says. She hopes that by sprinkling some lettuce seeds and tucking some starts in their Garden Tower, the children will gain some empowerment and see that "you can grow some of your own stuff; you don't have to be dependent upon others." ***FI**

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