

Earthtalk®

From the Editors of E/The Environmental Magazine

Dear EarthTalk: What is “vertical farming” and how is it better for the environment?

“Vertical farming” is a term coined by Columbia University professor of environmental health and microbiology Dickson Despommier to describe the concept of growing large amounts of food in urban high-rise buildings—or so-called “farm scrapers.”

According to the vision first developed in 1999 by Despommier and his students, a 30-story building built on one city block and engineered to maximize year-round agricultural yield—thanks largely to artificial lighting and advanced hydroponics and aerologic growing techniques—could feed tens of thousands of people. Ideally the recipients of the bounty would live in the surrounding area, so as to avoid the transport costs and carbon emissions associated with moving food hundreds if not thousands of miles to consumers.

“Each floor will have its own watering and nutrient monitoring systems,” Despommier elaborated to online magazine Miller-McCune.com, adding that every single plant’s health status and nutrient consumption would be tracked by sensors that would help managers ward off diseases and increase yield without the need for the chemical fertilizers and pesticides so common in traditional outdoor agriculture.

“Moreover, a gas chromatograph will tell us when to pick the plant by analyzing which flavonoids the produce contains,” Despommier said. “It’s very easy to do...these are all right-off-the-shelf technologies. The ability to construct a vertical farm exists now. We don’t have to make anything new.”

With world population set to top nine billion by 2050 when 80 percent of us will live in cities, Despommier says vertical farming will be key to feeding an increasingly urbanized human race. His Vertical Farm Project claims

that a vertical farm on one acre of land can grow as much food as an outdoor farm on four to six acres. Also, vertical farms, being indoors, wouldn’t be subject to the vagaries of weather and pests.

“The reason we need vertical farming is that horizontal farming is failing,” Despommier told MSNBC, adding that if current practices don’t change soon, humanity will have to devote to agriculture an area bigger than Brazil to keep pace with global food demand. Another benefit of vertical farming is that former farmland could be returned to a natural state and even helps fight global warming. As agricultural land becomes forest and other green space, plants and trees there can store carbon dioxide while also serving as habitat for wildlife otherwise displaced by development.

Vertical farming is not without critics, who argue that the practice would use huge amounts of electricity for the artificial lights and machinery that would facilitate year-round harvests. Bruce Bugbee, a Utah State University crop physiologist, believes that the power demands of vertical farming—growing crops requires about 100 times the amount of light as people working in office buildings—would make the practice too expensive compared to traditional farming where the primary input, sunlight, is free and abundant. Proponents argue that vertical farms could produce their own power by tapping into local renewable sources (solar, wind, tidal or geothermal) as well as by burning biomass from crop waste.

Contacts: The Vertical Farm Project, www.verticalfarm.com.

Send your environmental questions to: EarthTalk® P.O. Box 5098, Westport, CT 06881; earthtalk@emagazine.com. Read past columns at: www.emagazine.com/earthtalk/archives.php. EarthTalk® is now a book! Details and order information at: www.emagazine.com/earthtalkbook. •

Gardening

How to make the most of your fall harvest



(ARA) – As fall harvest season begins, many gardeners find themselves with bushels of tomatoes, baskets of cucumbers and armfuls of lettuce. So when your garden is overflowing with produce, how do you make the most of your harvest?

Gardeners know that the best way to experience fruit and vegetables at their prime is to grow them in their own backyards or in community gardens. Some of the most popular veggies grown in the United States include tomatoes, peppers, cucumbers, onions, beans, lettuce, corn and carrots, while the most popular homegrown fruits include apples, blueberries, strawberries and raspberries.

The experts at ScottsMiracle-Gro offer some top tips to help you take advantage of your fresh produce:

- * Harvest your food the same day you plan on using it. This ensures it will stay fresh and won’t dry out or wilt.

- * Do your picking in the morning when fruit and vegetables are most fresh.

- * Once you’ve picked your produce, store in a cool place and don’t wash until you’re ready to use it.

How do you know when your produce is ready to be pulled from the ground or plucked from the plant or tree?

- * Tomatoes are ready to pick when they’re smooth, heavy, glossy and red or orange.

- * When sweet peppers are between 3 and 4 inches wide and are firm, they’re ready to pick. The longer you leave them on the vine; they’ll turn red, yellow or orange and become sweeter.

- * When your cucumbers are ready to come out of the garden, they’ll be firm and the spikes will easily rub off.

- * When lettuce leaves are young and tender they’re ready for a tasty salad.

- * Tasting apples is often the best way to know if they’re ready to pick, but you can also grab one and lightly tug. If it easily comes off the branch, there’s a good chance it would make a great snack.

One of the biggest challenges for gardeners this time of the year is having too much produce at the same time. In many cases, it’s simply too much to eat on your own. So this harvest season, ScottsMiracle-Gro is asking Americans to donate their extra produce to a local Feeding America food bank for their neighbors in need. One in eight people is at

risk for hunger and, with record numbers of people turning to food banks, it’s more important than ever to contribute fresh, delicious and healthy produce.

To make sure your extra harvest doesn’t go to waste, visit GroGood.com to find and donate to your local Feeding America food bank.

“I believe that everyone should have access to fresh produce and the GroGood campaign allows Americans to enjoy the fruits (and vegetables) of their gardens and share their extra harvest with others,” says celebrity cookbook author Katie Lee Joel.

Inspired by her mom’s vegetable soup, Joel created this recipe for GroGood Garden Vegetable Soup to use produce fresh from the garden.

GroGood Garden Vegetable Soup
Makes eight servings.
Prep time: 10 minutes
Cook time: 1 hour 40 minutes
Ingredients:
2 tablespoons olive oil
1 large yellow onion, chopped
2 celery stalks, chopped
1 bay leaf
3 medium carrots, chopped
2 parsnips, peeled and chopped
1 medium turnip, peeled and chopped
1 pint Brussels sprouts, trimmed and quartered
1 3/4 pounds fresh tomatoes, chopped (can substitute a 28-ounce can of whole tomatoes with juice, chopped)
2 quarts chicken broth or vegetable broth
1-cup baby lima beans
One 15-ounce cans great Northern or cannellini beans, drained and rinsed
1-teaspoon kosher salt
1/2 teaspoon freshly ground black pepper
Instructions:

Heat the oil in a stockpot over medium heat. Add the onions, celery, and bay leaf and cook until the onions are tender, about 5 minutes. Add the carrots, parsnips, turnip, and Brussels sprouts and continue cooking until the vegetables are just tender, about 5 more minutes. Add the tomatoes and their juices and the stock. Bring the mixture to a boil, reduce the heat, cover, and simmer for 1 hour. Add the beans, salt, and pepper, and simmer for another 30 minutes. Courtesy of ARAcontent •

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